A STUDY OF NEW HOUSE PRICES
IN IRELAND IN THE SEVENTIES

IAN J. IRVINE

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Ian J. Irvine is a Professor of Economics at the Institute of Applied Economic Research, Concordia University. He was Visiting Professor during 1981-1982. The Paper has been accepted for publication by the Institute, which is not responsible for either the content or the views expressed therein.

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GENERAL SUMMARY

1. *Introduction*

The housing market in Ireland in the 1970s could be characterised as follows:
— Substantial increases in the price of new and secondhand houses were registered. Accompanying these were large increases in land prices. The rate of growth in both land and house prices generally outstripped the rate of increase in the consumer price index.
— Major changes in legislation governing building and in the direct and indirect subsidisation of housing were implemented by successive governments.
— The houses built in the late 'seventies were very different in size, design and type ("estate" versus "one-off") from those built in the early 'seventies.
— The number of new houses built each year in the 'seventies was almost double the number built in the early and mid-sixties.

The purpose of this paper is, broadly, to examine the reasons for these stylised facts. Further, the purpose is to analyse the events of the 'seventies with a view to offering some conclusions on the efficacy of government policies in relation to stated objectives. It is not the objective of the paper to analyse all aspects of the housing market. The focus of attention here is primarily upon the new private housing sector with an emphasis upon causative and quantifiable behaviour.

The motivation for this study springs from several sources. First, concern over housing prices has played a major role in public policy making, as witnessed by the many changes in legislation which have taken place. Second, the granting of substantial subsidies to the housing sector raises questions regarding the intent and effects of such subsidisation. Third, the absence of quantitative analysis in certain areas has made the evaluation of government policies very difficult.

The major findings of this study relate to (a) the tax system (b) the cost of home ownership (c) an examination of econometric modelling of the housing market (d) an analysis of the interrelationships between the different segments of the market and the place of price controls in this system (e) the evolution of housing quality and (f) the utilisation of space.

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2. *Economic Concepts*

Possibly the most difficult hurdle to scale in conducting public discussion on the government's role in housing is to formulate concepts through which such a discussion can be moderated. Consistent policies cannot be formulated if one group in society uses only norms of economic efficiency while another uses only norms of equity.

When economists invoke the concept of an *efficient allocation of resources* they refer to conditions of operation in the economy such that resources are not wasted. In technical terms, an efficient use of a resource is one in which it is used to a point where the marginal cost to society equals the marginal value placed upon it. If solely notions of efficiency were of concern the major justification for government intervention would be to counter market failure. But this is rarely the case. Few, if any, societies have a minimalist role for government and a feature of most is a stated concern with equality.

Thus the formulation of housing policy must seek to balance the efficient allocation of resources with considerations of equity. And in these circumstances the economist cannot always say that a certain policy is "right" or "wrong" or "inappropriate" without invoking some normative standard. Unfortunately, in some instances the formulation of policy seems to have been undertaken in an environment in which such trade-offs were not always recognised.

3. *The Income Tax System*

The income tax system provides incentives for home ownership in two important ways. First, the imputed income from home ownership is not taxed. Second, within varying limits, mortgage interest has been tax deductible. It has been a widely held belief that households have faced increasing marginal income tax rates during the 'seventies and that as a consequence there has been an increasing incentive to purchase housing because of the provisions of the income tax code.

Thus, in examining the effect of the income tax code the first task is to examine the trend in the tax rate. Since data are not available directly on the tax rates paid by house purchasers for the whole period these rates must be estimated. The estimation is carried out by fitting a regression line to data which are available for a subperiod and the resulting estimates are then used to simulate the tax rates for typical house buyers for the remaining period. The results indicate that the rate facing purchasers has increased from approximately 26 per cent in 1969 to 40 per cent in 1979 due to the lack of full indexation in the tax schedule. The income splitting provisions of the 1980 budget lowered this for married couples.

While the tax rate thus increased substantially, it is to be emphasised that this provision alone was not sufficient to encourage investment in housing rather than any other asset. The *general* provision for interest deduction (rather than just mortgage interest) would insure investment in a variety of forms were it not for the fact that housing provides a very good form of collateral and has been perceived as an asset which would likely yield a higher non-taxable capital gain.

4. *The Cost of Home Ownership*

Rising house prices have led to considerable concern on the part of successive governments over the ability of families to afford housing. The consequences of such concern have been in the form of purchase incentives and subsidies. What has been absent in this process is a clear formulation of what the cost of home ownership has been. In Chapter 3 of the study cost estimates are developed for typical purchasers of new houses for the period 1970-1980.

At the outset a distinction is made between the purchase price of a house and the cost of ownership (which is termed the cost of capital in the text). The cost of ownership for any time period is defined as the mortgage cost plus maintenance, depreciation and property taxes minus capital gains and tax savings attributable to the non-taxation of imputed income and mortgage interest. The estimates so obtained show that the cost for new home purchases has been strongly *negative* for several years in the 'seventies. This fact has been due primarily to substantial capital gains and to the savings on income taxes.

These negative costs raise at least two questions. First, is it necessary to subsidise housing to the extent then undertaken? Second, what are the mechanics of the operation of the market which have resulted in almost continual capital gains?

It seems that subsidisation is undertaken because of the recognition of the high carrying costs relative to income despite the resulting gains to households at all ranges of the income distribution. If carrying costs concerns are the reason for subsidisation it is unclear why the government has not been more active in mortgage policy by providing incentives to mortgage granting institutions to vary the type of mortgages offered. The availability of alternative instruments would obviate some of the perceived need for the present costly subsidisation which cause very regressive income distributional effects.

While recent governments have made movements in this direction, in the form of the Housing Finance Agency, why such instruments are being proposed only for low income groups remains unanswered. The distributional consequences of high and middle income households being financed by subsidised interest rates, with lower middle income households paying higher

rates are severe. When, further, the historic practice of permitting mortgage interest deductions to be made at the marginal rate of tax is considered together with the interest subsidisation policies, a pattern of subsidies emerges which is unusually regressive.

The second question, concerning the equilibration of markets is addressed in Chapters 4 and 5. Here it is argued that restricted mortgage availability, the constraining role of current rather than life cycle incomes and possibly inaccurate price forecasts have prevented immediate equilibration.

5. *Quality Changes in New Housing*

While house prices registered substantial increases during the period under consideration, some of the increase is attributable to the fact that the houses built at the end of the period were larger and better constructed than the houses built at the beginning. Reasons for this trend are proposed in Chapter 2. It is proposed that, in addition to the effects of higher incomes and an expanding population, the evolution of size and quality has been attributable to the structure of state grants, the existence and subsequent abolition of rates together with regulations governing their sliding scale remission when operative, the structure of development of building sites, the housing market recession of 1974/75, the cost of working capital, the role of price controls and to the general battery of incentives to purchase housing.

6. *Econometric Models*

The existing rather small body of econometric work on the housing market is examined in Chapters 4 and 5. While substantial insights into the operation of the market and into the modelling difficulties have been generated as a result of this work, unfortunately the statistical estimates arrived at in some of the work are unsatisfactory. While some of the problems here are solvable, the major difficulty in econometric modelling lies in the numerous changes in circumstances and legislation governing the market. These continual changes make the outlook for econometric work dim.

7. *The Optimal Amount of Housing and the Utilisation of Space*

An important and much neglected aspect of housing policy concerns whether or not the housing stock is efficiently used. For example, do overcrowding and underutilisation simultaneously exist? It is argued here that the heavy emphasis on the construction of new owner occupied dwellings in housing policy, combined with the relative neglect of a private rental sector and the

maintenance of the existing stock, has led to a less than ideal pattern of development. In addition, the very high costs associated with moving, in part attributable to stamp duties, has restricted mobility and thus led to a less than full utilisation of many houses.

8. *The Housing Market, Price Controls and the Kenny Report*

In the final chapter of the paper a model of the functioning of the whole housing market is offered. This consists of an examination of the interrelationships between the market for the existing stock of houses, the flow of new houses and the land market. By recognising the essential difference between stocks and flows and further recognising the fact that new house prices do not move from one equilibrium to another instantaneously, it is possible to draw inferences for current issues of policy. In particular it is illustrated that the primary effects of price controls are redistributive and that their long-run effect on the price of even new houses is negligible. The clear implication of this conclusion is that the purpose of the system of price controls presently in operation (Certificates of Reasonable Value (CRV)) must be called into question.

This framework further provides a vehicle for examining the proposals in the "Kenny" report. The principal theme of this chapter is to illustrate that the determination of equilibrium prices must be viewed from a behavioural rather than an accounting framework. (One of the most unfortunate aspects of policy making in recent years in relation to controlling prices has been that, even though praiseworthy in intent, the major long-run effects of the system of new house price controls have had little to do with controlling prices). The purpose of the Kenny report recommendations was to ensure that some of the increase in land values (primarily due to servicing with water and sewage facilities) be captured by the Local Authorities. It is proposed in the paper that, if the recommendations regarding compulsory purchase are implemented, it is not necessary that the land be resold cheaply to developers in order to benefit home buyers. Rather the land could be sold at full market price and the funds so obtained could be used for whatever purpose the community or Local Authority deems suitable.

Chapter 1

INTRODUCTION

1. 1. *Purpose and Motivation for the Study*

The housing market in Ireland in the 1970s could be characterised as follows:

— Substantial increases in the price of new and secondhand houses were registered. Accompanying these were large increases in land prices. The rate of growth in both land and house prices generally outstripped the rate of increase in the consumer price index.

— Major changes in legislation governing building and in the direct and indirect subsidisation of housing were implemented by successive governments.

— The houses being built in the late 'seventies were very different in size and design (which we shall term "quality") and in type ("estate" versus "one-off") from those built in the early 'seventies.

— The number of new houses built each year in the 'seventies was almost double the number built in the early and mid-sixties.

The purpose of this paper is, broadly, to examine the reasons for these "stylised facts". Further, the purpose is to analyse the events of the 'seventies with a view to offering some conclusions on the efficacy of government policies in relation to stated objectives. It is not the objective of the paper to analyse all aspects of the housing market. Such a wide-ranging analysis has already been carried out by Baker and O'Brien (1979). The focus of attention here is primarily upon the new private housing sector of the market with an emphasis upon causative and quantifiable behaviour.

The motivation for undertaking this study springs from several sources. In the first place, *concern over housing prices has played a major role in public policy making.* The system of grants in place in the mid-1970s, designed to facilitate the purchase of all types of housing, has undergone changes. These changes have come in the form of increased cash grants, the abolition of rates, new mortgage interest allowances for income tax purposes and changes in regulations governing qualification for grants. In conjunction with the introduction of more direct house price control methods (Certificates of Reasonable Value) these measures were aimed both at keeping the price of houses within range of a greater number of purchasers and stimulating the building sector.

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A second reason for examination of the housing market springs from *the economic cleavage between those families who own houses and those who do not*. Those who invested in housing before the period of high inflation gained relative to others. The redistribution of wealth which the inflation brought about has been exacerbated by higher interest rates and higher deposit requirements; and these developments have made it more difficult for those on one side of the cleavage to catch up with those on the other. Apart from participation in pension schemes, owning a home is the most widespread vehicle which families have at their disposal to accumulate capital. As a consequence, factors which generate barriers to the attainment of that goal for a large segment of the population can have serious social consequences, particularly as the encouragement of home ownership has been a priority for most governments in Ireland to the extent that, with a home ownership rate of approximately 75 per cent, Ireland has one of the highest rates in Europe.

A further motivation, and this refers in particular to the *measurement problems*, is that in conjunction with government concern over the state of housing — and partly as a response to it — economists and econometricians have begun to analyse the market. For researchers seeking solutions to issues of policy making through the construction of analytical models, it is of prime importance that meaningful data series be used. It is thus one of the major objectives of this study to develop appropriate data series. It will be argued in the paper that data measurement errors in some of the existing econometric work are serious enough to cast doubt on the conclusions of these studies. This applies in particular to the measurement of tax and quality adjusted price variables (Chapter 2) and the cost of capital (Chapter 3).

Fourth, the motivation for examining the housing market springs from a concern expressed in recent years regarding the *allocation of investment in different sectors of the economy*. With rates of investment which are very high by international standards it might be expected that the long-term outlook for the economy would be very favourable. But with slow growth the overall allocation of investment warrants examination.

Finally, it is hoped that the current paper will serve as an *input to policy making* in at least two ways. First, data series are developed which have to this point in time been unavailable. A clearer knowledge of what has actually happened should make a better evaluation of current policies possible. Second, the paper illustrates that certain policies which have been adopted have not always had the desired consequences. For example, the *universality* of certain programmes, such as mortgage interest deductibility, can be regressive in the income distributional sense. The multiple effects of specific measures (for example, the adverse consequences on the rental sector of heavily loading building incentives in favour of new owner occupied houses) have not always been recognised.

The present paper is not the first to address the private housing market. A series of studies have been done on the role of subsidies (e.g., McKeon and Jennings (1978) or NESC (1977)), the behaviour of the mortgage market (Hewitt and Thom (1979) or O'Loughlin (1980)), the land market (Jennings (1980)) and the housing system in general (Baker and O'Brien (1979)). In addition, econometric work, to be reviewed in Chapter 4, has been done on the market for private new houses by Nolan (1980), Keneally and McCarthy (1982) and Thom (1983). One of the distinguishing features of the present paper is its focus upon the role which government has played in the private house building market. It thus bears similarity in philosophy and intent to the latter named papers but has a different focus.

In concluding this introduction it should be noted that the period covered in the study effectively ends at 1981. This is because the (first draft) of the work was completed in 1982 and while there have been several changes of an institutional type in the interim, time and finance have not permitted me to examine these in detail. In light of the changes in market conditions in the early 'eighties it would be fruitful to update the work on the cost of capital and the behaviour of tax rates in particular. However, it is hoped both that the methodology defining such an undertaking has been made clear enough to facilitate such updating, and that the principles underlying the functioning of the various segments of the market have likewise been sufficiently clearly stated to facilitate an understanding of the effects of the institutional changes.

Throughout the paper constant attention is paid to the notions of efficiency and equity (discussed in Chapter 2.1). In particular, emphasis is placed upon the efficient use of resources and an efficient use of the existing stock. Since 1982 economic conditions have slackened with resulting excess supply in the construction industry. Should government policy be directed towards stimulating this sector of the economy, it is to be hoped that such a stimulus would recognise the quasi irreversibility of new housing investment and that encouragement to the sector would pay heed to the needs of an orderly long-term development of the market rather than be dictated by the stage of the economic cycle in which we now find ourselves.

1. II *Economic Concepts*

Possibly the most difficult hurdle to scale in the attempt to conduct discussion in the public domain on the role of government in relation to housing is the formulation of a set of concepts through which such a discussion can be moderated. Consistent policies cannot be formulated if one group in society uses only norms of economic efficiency while another uses only norms of equity in their decisions governing the allocation of resources.

When economists invoke the concept of an *efficient allocation of resources* they refer to conditions of operation in the economy such that resources are not wasted. In technical terms an efficient use of a resource is one where it is used to a point where the marginal cost to society equals the marginal value which society places upon it. If the value exceeds the cost, more of the resource should be used in production, if the cost exceeds the value, less should be used. It is important to emphasise that optimal resource allocation should be defined in terms of *social* costs and values. If there are no externalities generated by the activity social and private measures are equivalent. (An example of an externality in this sphere would be the building of a block of flats overlooking small houses and thus robbing them of daylight).

When efficiency is defined in terms of marginal equivalences it is straightforward to see that, by intervening in the market place through the granting of subsidies and the levying of taxes, the government might distort the allocation process and thus engender a misdirection of scarce resources. For example, by granting income tax relief on mortgage interest the government lowers the effective cost of house purchase and thus encourages individuals to purchase more housing than they would in the absence of such a policy. Some economists (though not this one) would thus argue that there is no role for the government in the market place.

The principle can be seen very easily by means of Figure 1.1. The curve D represents some individual's demand. It could also be termed the individual's marginal evaluation curve (Silberberg (1978) p. 350-362). The curve S is the supply curve and in a competitive industry will generally represent the marginal cost of producing the good (here housing). With a free market the h_0 units of housing are purchased. At this point marginal private cost and value are equal, as are the marginal social cost and value in the absence of externalities.

With the introduction of, for example, a subsidy to the supplier cost, to the purchaser falls to S^1 and it is now optimal for *the individual* to purchase h_1 units of housing. However, this is no longer a *social* optimum. The reason is that the cost to society of h_1 units of housing is given by R_1 whereas the cost to the individual is given by P_1. There is thus an efficiency loss in the sense that the resources would be valued more highly if put to another use. The ensuing loss is referred to as a "deadweight" loss or a loss in producer's and/or consumer's "surplus" and is brought about by the existence of a "wedge" between social costs and private costs.

These costs are particularly easy to overlook for the very simple reason that they are not perceived. The dominant aspect of the construction of more private houses is the housing of more families, not the fact that if those resources had been directed elsewhere jobs of a different type would be generated. The fact that the alternatives are not immediately visible should not detract from recognising the real social cost of resources.

If solely notions of efficiency were of concern the only justification for government intervention would be to counter market failure, i.e., to help the market to function in its role of resource allocation in those instances where — for reasons perhaps of externalities — it is prevented from so doing. But this is rarely the case. Few, if any, societies have a minimalist role for government and a feature of most is their stated concern with equality. A more equitable distribution of economic wellbeing than that resulting from the interplay of market forces and some given distribution of inherited position can be motivated by a variety of reasons.

FIGURE 1.1 : *Resource allocation in the housing market*
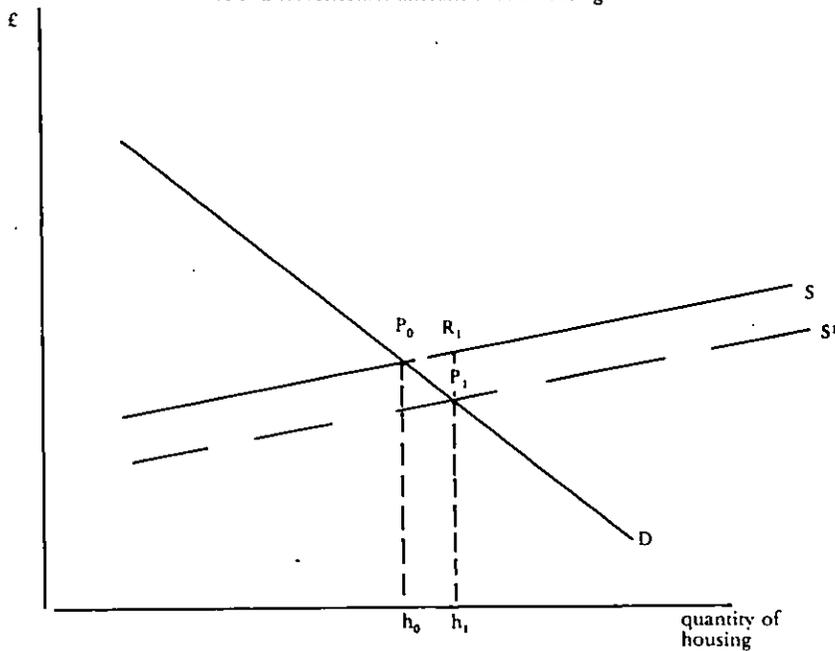
One is that the ability to purchase goods and services and even to accumulate human capital is heavily dependent upon social and economic background. In such a situation it is argued that the further absence of equal access to education implies that subsidies and taxes are necessary to attempt to redress the social imbalances. Thus, for example, the subsidisation of housing for those at the lower end of the income distribution would, in this view, be a legitimate way of moderating inequality.

A slightly different manner of rationalising redistribution is to take a Rawlsian view of society. In such a context even equal access to education and

capital markets would not be reasons for *laissez-faire*. The perception of the distribution of individual abilities and position as being unknown would lead individuals in an imaginary pre-materialisation to rationally formulate *maximum* type redistribution rules.

Yet a further approach is to use non-individualistic criteria. Rather than formulating policy on the basis of a social welfare function defined in terms of the sum of the wellbeing of individuals (which is the approach implicit in the previous paragraphs where effectively different weights are assigned to different individuals), society decides that certain goods should be available in minimum quantities to all individuals. Such goods are referred to as "merit wants" (Tobin (1970)). Examples today are health care or free public transit for the aged. Housing, likewise, could be defined as a merit good, perhaps because the standard of health depends upon the quality of accommodation or that the interests of children are at stake.

In sum, there are a variety of reasons why the allocation of resources resulting from the functioning of the marketplace could be deemed to be less than socially desirable — even if the marketplace were functioning efficiently in the sense previously described.

Thus the formulation of housing policy must seek to balance the efficient allocation of resources with considerations of equity. And in these circumstances the economist cannot always say that a certain policy is "right" or "wrong" or "inappropriate" without invoking some normative standard. However, it will be argued in this study that in some instances the formulation of policy would seem to have been undertaken in an environment in which such trade-offs were not recognised. In this sense, as pointed out earlier in the chapter, the provision of information and data defining the choices for policy making is one of the study's major objectives.

From this point the paper proceeds as follows. In the next chapter we review the major trends in the 'seventies and examine the rate of return to housing, the evolution of the tax system, changes in housing quality and the general behaviour of the market for private new houses. In Chapter 3 the cost of ownership of a new house is examined with particular focus upon the role of inflation, government incentive schemes and land. Chapter 4 deals with the econometric literature on housing in Ireland. In Chapter 5 the functioning of the whole market for housing is examined within a consistent framework. The interrelationships between the key elements in the system (land, new houses, secondhand houses and mortgages) are examined and some important conclusions are drawn both for the role of price controls and the direction in which future econometric work should go. In the final chapter the conclusions of the various parts of the study are drawn together and some recommendations are offered.

Chapter 2

AN OVERVIEW OF THE MARKET

In this chapter an overall view is presented of the new house market in the 'seventies. This involves two things: First, a presentation of *information* and an examination of quality changes in new houses (Sections 2.I and 2.II). Second, an analysis of the *behavioural aspects* of the housing market. Thus in Sections 2.III through 2.IV the rate of return to housing is examined, the effects of the income tax system are analysed and this is followed by a discussion of the appropriate amount of housing to be supplied.

2.1: Trends in the Seventies

In contrast to the 1960s housebuilding in the 'seventies expanded very rapidly in the early part of the decade and stayed at a plateau — with some variations — from 1974 onwards. This plateau corresponded to a level of output about twice that produced in the previous decade. As can be seen from Table 2.1 the growth in output has not always been smoothly increasing. The construction of Local Authority (LA) houses expanded up to 1975 when a peak of almost 9,000 was reached and then declined to a figure in the neighbourhood of 6,000 in 1978-1980. Privately constructed houses, on the other hand, have not witnessed such a contraction. After a significant growth in 1971 the output of private houses — with the exception of a dip around 1976 — has progressed from 9,201 in 1969 to 21,777 in 1980.

In terms of numbers of houses built, output in the industry has thus increased by about 100 per cent. In real value terms the increase has been greater than this, as we shall argue in Section 2.IV that there have been significant quality improvements in the industry. The increase in real output has considerably outstripped the real growth rate in the economy as a whole. The figures in Col. (v) of Table 2.1 indicate that real GNP growth over the same period has been of the order of 44 per cent.

Accompanying the increase in the number of houses built there has been a steady increase in the price of new houses. Over the period the price of an average new house rose from £4,625 to £27,538 — an increase of 495 per cent. The price is defined as the average for those houses which are financed by loans from the major lending institutions. The Consumer Price Index on the other hand rose by about 300 per cent.

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Table 2.1: *Behaviour of key variables in the 'seventies*

	(i) Number of new houses completed	(ii) Number of private houses completed	(iii) Number of Local Authority houses completed	(iv) Average price of new private houses	(v) Percentage change in GNP at constant prices	(vi) Index of average earnings in transportable goods industries (Quarter 2)	(vii) Estimated population in thousands
1969	13,983	9,201	4,782	4,625	4.4%	97	2926
1970	13,887	10,120	3,767	5,270	2.3%	100	2950
1971	15,380	10,591	4,789	5,925	4.3%	107	2978
1972	21,572	15,670	5,902	6,497	5.2%	113	3024
1973	24,660	18,588	6,072	7,064	5.8%	122	3073
1974	26,256	19,510	6,746	8,534	2.7%	124	3124
1975	26,892	18,098	8,794	10,438	−1.1%	126	3177
1976	24,000	16,737	7,263	12,258	1.8%	126	3228
1977	24,548	18,215	6,333	14,770	4.8%	133	3272
1978	25,444	19,371	6,073	18,966	6.9%	144	3314
1979	26,544	20,330	6,214	23,144	3.9%	143	3363
1980	27,785	21,777	6,008	27,538	0.4%	144	3404*

*Mid point between 1979 and 1981 Censuses.
Sources: (i) – (iv) *Quarterly Bulletin of Housing Statistics.*
          (v) 1969 – 1979 *National Income and Expenditure* 1980 ESRI *Quarterly Commentary,* July 1981.
          (vi) *Irish Statistical Bulletin.*

The fact that a good, the quantity produced of which has risen to such an extent, can experience a price increase of this magnitude indicates that very strong influences have been at work in the market place to bring such price changes about. While a detailed analysis of some of these influences (tax regulations, quality change, government grants, inflation) is presented later, we note just two factors at this point. The first refers to the growth in incomes. The GNP index and the index of earnings in transportable goods industries in Table 2.1 indicate that purchasing power expanded considerably — particularly in the two phases 1971-1973 and 1977-1978. Scheffman and Slade (1981) have argued that the growth in real income has played a major role in the demand for housing in their study of house prices in Britain, Canada and the US. In addition to this, the demographic expansion of the 'seventies, which far exceeded anything in recent history, meant that housing demand increased to cater for the greater number of family units. The average annual population growth in the 'sixties was about 16,000 (.05 per cent) while in the 'seventies it was of the order of 46,000 (1.4 per cent). Accompanying the greater population in the latter period was a greater tendency for households to "undouble". Blackwell (1981) estimates that, of the increase in the number of households between 1971 and 1979, 35 per cent was due to an increase in headship rates, though it must be recognised that such undoubling may not be independent of the size of the housing stock and is certainly not independent of growth in incomes.

2.II *Quality Changes in New Housing*

In the preceding section it was illustrated that a very strong increase in house prices was registered during the period under consideration. In this section we start by examining the available evidence on quality changes. From this two questions emerge. The first concerns why the changes have taken place, the second how quality changes can be quantified. A detailed treatment of the latter issue is to be found in Jennings (1983, a).

The major sources of information are the studies by Duffy (1979, 1980) based upon survey data gathered by *An Foras Forbartha* for the years 1976, 1978, 1979, 1980 and planning permissions data published in the *Irish Statistical Bulletin*. The latter part of the 'seventies is characterised by more information than the early part — since both the Duffy studies and planning permissions data are pertinent, whereas only the planning data are useful for the early part.

One of the important trends over the period has been a gradual movement away from estate type houses towards single houses. Table 2.2 contains a breakdown, by category, for 1976-1979. This trend is more attributable to differential regional rates of growth in house building than to major changes in the ratio of single to estate type houses within regions (Duffy, 1980, p. 4). For example, the replacement of many farmhouses in the rural areas explain some of this pattern as do changes in regional population and employment patterns.

Overall, the 'seventies seem to be characterised by two distinct phases: The early years, up to 1974/75, when average housing size was falling and the subsequent years when a much stronger counter trend materialised (see Figure 2.1). Data on approved planning applications (which do not always reflect actual construction) indicate that average floor area decreased from 1,106 square feet in 1970 to 1,062 square feet in 1974 (a decline of 4 per cent) and increased to 1,214 square feet by 1979 (an increase of 14 per cent). Duffy (1980, pp. 40/41) shows that this pattern for the latter part of the period was similar for both estate type and single houses.

Table 2.2 *Composition of housing output.*

Category	1976	1978	1979
1. Local Authority and other State financed houses	7,398(31%)	6,127(24%)	6,239(29%)
2. Private estate houses	10,320(43%)	11,170(44%)	10,323(39%)
3. Private single houses	5,538(23%)	7,379(29%)	9,095(34%)
4. Private apartments in new blocks	294(1%)	318(1%)	437(2%)
5. Conversions	450(2%)	450(2%)	450(2%)
Totals	24,000	25,444	26,544

Source: Duffy (1980) p.2.

FIGURE 2.1: *Area of new private houses for which planning permission has been granted.*
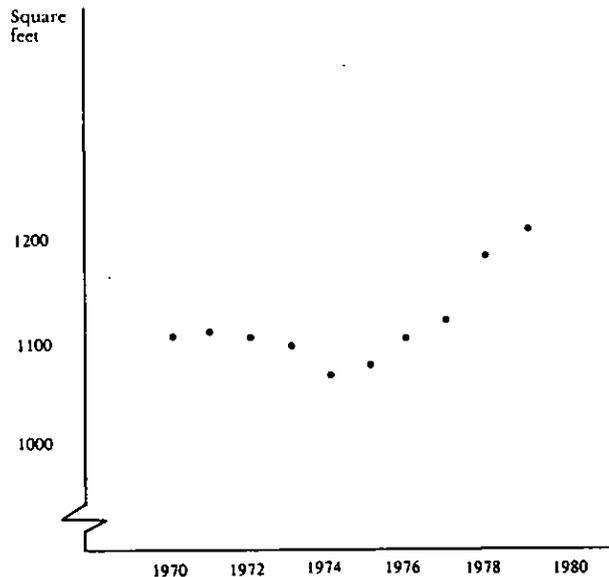
Source: *Irish Statistical Bulletin.*

More detailed information on quality change (for which floor size may be considered a good measure) is contained in Table 2.3 for the years 1976-1980. As can be seen, a significant movement away from semi-detached to detached structures was witnessed up to 1979 with some reversion in 1980. This is consistent with the general direction of floor space.

Accompanying the shift towards larger single structures has been a general improvement in the materials used in the design and finishing of new houses. Cavity type walls were used to a much greater extent, particularly in estate houses, in 1980 compared with 1976. The change in single houses has been minimal. Complementing this has been an increase in the amount of brickwork and stonework in the finish. The percentage of new houses not equipped with central heating has dropped from 43 per cent to 7 per cent for estate houses. The percentage of houses with *some* type of insulation in the roofs, floors and external walls is shown in Table 2.3. Here again the quality of insulation has improved substantially. Much of this trend towards better insulated houses was as a result of government legislation, though a considerable move towards insulating roofs in particular was made in the mid-seventies as a result of the energy crisis.

There are several reasons for the improvement of the interior finishing. With the increase in the rate of female participation in the labour force it is ever more

Table 2.3: *Characteristics composition of housing*

	Estate houses				Single houses	
	1976	1978	1979	1980	1976	1980
Size						
100 sq. m.	74%	37%	32%	38%	38%	21%
100–140 sq. m.	20%	52%	54%	52%	50%	66%
140 sq. m.	0%	11%	13%	10%	6%	13%
Average floor size	95 sq. m.	114 sq. m.	114 sq. m.	111 sq. m.	106 sq. m.	121 sq. m.
Percentage change in floor size		+19%	0%	–3%		+14%
Structure						
Detached	6%	32%	32%	23%	other 12%	14%
Semi-detached	82%	58%	58%	72%		
Terraced	8%	5%	4%	2%		
Bungalows .	4%	5%	8%	4%	88%	86%
Walls						
Hollow blocks 225 mm.	88%	74%	68%	58%	2%	1%
Cavity 275 mm.	14%	20%	30%	42%	95%	97%
Other	–	–	2%	–	3%	2%
Wardrobes						
Average per house	1.0	2.1	1.8	1.9	1.9	2.4
Central Heating						
Percentage of houses with central heating	57%	93%	93%	93%	n.a.	n.a.
Insulation						
Roofs	78%	91%	92%	99%		
Floors	4%	17%	58%	89%	n.a.	n.a.
External walls	1%	3%	16%	66%		

Source: Duffy (1980) Appendices.

the case that a higher percentage of first time buyer couples are both working and hence have both higher incomes and less time to work at finishing a new house. Their opportunity cost is high. Additionally (i) the costs associated with better finishing of a house are part of a mortgage and payments can thus be spread over, say, 25 years which is a more attractive prospect than paying for such expenses out of current income and (ii) if purchased retail, house fittings are subject to a higher rate of value added tax than if installed by builders. It must, however, be recognised that in explaining the *change* in quality, the major influence has likely come from the two income family rather than the additional reasons, since the major change has come in the former.

In brief, there has been a great change in the type of houses which have been built in the 'seventies. The trend in the early years was towards smaller houses whereas in the later years it was towards larger, more completely finished houses, using better materials. It is thus unreasonable to suppose that average house prices recorded over that time are purely a measure of price change. (One of the corollaries of this is that the relationship between house prices and building costs must be interpreted with care. In particular, the fact that published figures indicate that costs and prices have changed at different rates must not be construed to mean that profit margins have changed radically in house building. See Figure 2.2).

Consider now what reasons may have been responsible for the shift in quality. In the first place it is obvious that all of the factors which are responsible for generating an increased demand for house numbers — i.e., government incentives, inflation, income· growth, etc. — are likewise responsible for generating a demand for large and better houses. Some additional factors relating to supply conditions have apparently also been at work however.

The small decline in housing size in the early 'seventies may be attributable to the type of grant structure which came into existence with the 1970 *Housing Act*. Previously grants had been payable on the basis of the number of rooms in the house. With the new regulations the largest grants were given for houses with a floor area between 75 and 100 square metres (807-1,076 square feet) and no grants were payable for house sizes above 1,249 square feet. The grants receivable from the then *Department of Local Government* were paid directly to the builder with a supplementary grant from the Local Authority payable to the purchaser. With the replacement of this system in 1977 by the single lump sum grant of £1,000 payable to the buyer and the accompanying relaxation of floor size requirements there was no longer the incentive to build houses in the 75-100 square metre range.

Of particular interest in the 1970-1975 period is why house sizes remained low despite the surge in incomes in the 1971/73 period. The explanation for this would seem to lie in the pattern of building site development at that time and the role of mortgage availability. With a greater tendency for builders to lay foundations for a complete development and finish the building process gradually, a given stimulus to build particular sized houses would have a longer lasting effect than in a situation such as existed in the late 'seventies, when working capital was more expensive and the tendency was for sites to be completed in blocks. Coupled with this was the general shortage of mortgage funds in 1974 which postponed the sale of some houses until the following year.

The changes in the grant allocation regulations in 1977, under which only first time buyers qualified, also meant that there was no longer an incentive for

FIGURE 2.2: *Housing price and cost indices.*
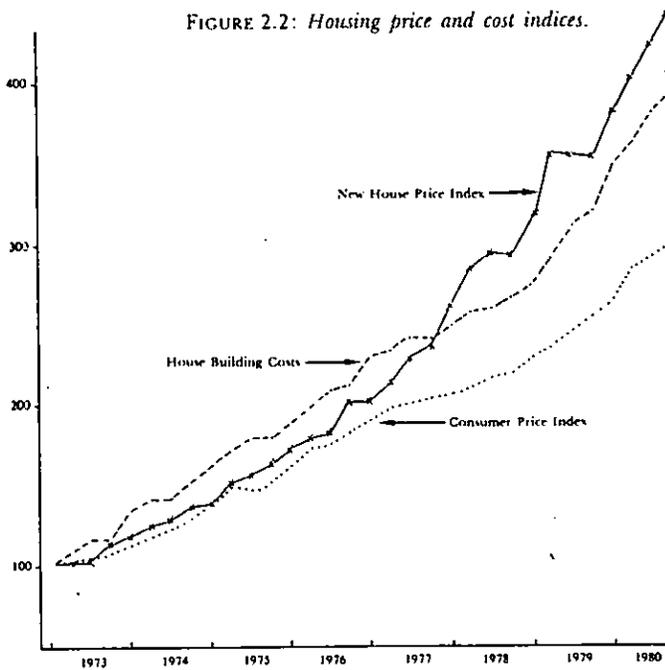
Source : *Quarterly Bulletin of Housing Statistics*

second time buyers to be constrained in their choice of size of house.

The abolition of property taxes ("rates") on residential housing effective from January 1978, meant that yet another check on house size was lifted. Prior to this owners of new houses below 1,250 square feet were subject to rates on a sliding scale whereas owners of houses above this were subject to full taxation. For the former one-tenth of the full amount was payable in the first year of ownership two-tenths in the second year, etc., until year 10 when the full amount was payable. With the abolition of rates the incentive generated by the differential treatment of different sized houses no longer existed.

Quite apart from these specific changes, the general incentives for more households to purchase housing (such as inflation induced capital gains, favourable tax treatment, higher real incomes, etc., which will be discussed in later chapters) equally were incentives for individual households to purchase larger sized houses.

The effect of all of these changes together likely meant that there was an imbalance in the desired stock as between large and small house — and their imbalance would have required more than just one year to redress given that the flow of new houses is such a small percentage of total stock.

The change to larger sized houses in the second half of the decade was motivated additionally by supply side reasons.

When a change in consumer preferences induces a movement towards a product which differs from what was formerly being consumed suppliers will generally respond — perhaps with a lag, or with the inducement of a change in relative prices — to this type of shift. In this sense the demand considerations are sufficient to explain the movement towards larger, higher quality housing in the mid/late-seventies. But, though less easy to quantify, there have been reasons for the suppliers likewise to prefer the emerging demand pattern.

Relative to the latter part of the decade, builders of estate type houses in the early 'seventies were geared to building relatively larger numbers of low cost housing. Profits were perceived to depend upon fast turnover or low holding costs. During the period 1967/68 – 1973/74 the total number of houses completed rose from 12,017 to 25,365. This expansion meant that the building industry was geared to a much higher rate of production at the end of the period than at the beginning, and when the slowdown in the effective demand for houses materialised in 1974/76 due to the general slowdown in economic activity, builders were forced to hold larger than customary stocks of unsold houses.

The demand slowdown was compounded by a shortage of mortgage funds from the major lending institutions. In 1974 the government advised the building societies to concentrate their loans upon new house purchases. This had unfortunate effects on both the secondhand and new markets. With secondhand houses more difficult to sell, many purchases of new houses by existing owners, conditional upon the sale of their previous house, did not materialise. With the recognition of the impossibility of separating the markets for new and secondhand houses the government requirement was rescinded.

This slowdown, after a period of great expansion, in conjunction with higher interest rates, led to a preference for smaller stockholding by builders. This in turn implied that a certain movement to larger houses in smaller numbers with a switch from estate type to one-off type houses was seen by some builders as a way of avoiding risk without an undue fall in profits. This period also witnessed a tendency for larger builders to concentrate upon site development and then sell the sites to smaller builders for construction.

In subsequent years it is arguable that the spread of Certificates of Reasonable Value (CRV) Scheme caused some shifts in the market. The certificates were introduced in an effort to control the price of new houses and the requirement of a certificate has gradually expanded to one in which (at the time of writing) almost all new mortgage financed houses require a CRV or equivalent exemption certificate (details are contained in the notes in various issues of the *Quarterly Bulletin of Housing Statistics, (QBHS))*.

Considerable dispute exists regarding the effects of this scheme. On the one hand, it is proposed by the *Department of the Environment* (1981, p. 29) that

considerable savings to housebuyers have resulted from the effective roll-back of prices requested by builders for new houses. For example, a total of 3,122 certificates for 11,626 dwellings were issued in 1980 and price reductions were effected on 1,464 houses. The amount the buyers were "saved" amounted thus to £3.9 million. (Of course it can be argued that such a notion of saving is meaningless. For example, if builders had applied for £5m more the "savings" would have been £8.9m). In addition 6,904 Certificates of Exemption (CE) were issued. A different view of CRVs has been expressed by M. Greene *(The Irish Times,* 7 June 1980). He argued that delays in obtaining certificates are costly and that many contractors switched to the upper end of the market to avoid the administrative work associated with obtaining the Certificate.

There is a dilemma here for the policy maker. On the one hand, the plethora of incentive schemes in existence – which are part of the philosophy of encouraging home ownership – certainly increases demand (and hence prices), while, on the other hand, schemes such as the CRV are intended to dampen the tendency for prices to increase.

When making an assessment of schemes such as the CRV it is essential to distinguish between two notions of cost – a distinction which was not wholly recognised in the above referenced views. When the Department of the Environment (DOE) refers to a reduction in prices of £3.9 million it is referring to a *redistribution* of purchasing power within the economy, *not* to a net saving of society's resources. Greene's argument, on the other hand, refers to real net social losses as a result of increased working capital requirements, an increased amount of resources devoted to implementing the scheme and a redirection of resources within the industry. While a loss in real resources in return for a more equitable distribution of wealth may be desirable, it would seem that, in this instance, not only has such a balance not been examined, but the trade off may not have been recognised.

It will be argued in Chapter 5 and in the conclusion of this paper that the design of the Certificate of Reasonable Value scheme and the functioning of the housing market is such that price controls can only be effective in the short run and that in the long run the scheme has negligible effects as far as controlling prices is concerned. Furthermore, the general philosophy behind the implementation of price control schemes in an industry which is characterised by low concentration, considerable competition among builders, and relative freedom from entry barriers, warrants elaboration. While intervention in markets may be desirable on account of incomplete information or capital market imperfections, it would seem that intervention via CRVs has been motivated, not by these considerations, but out of a belief that such intervention can permanently affect the level of prices.

The remaining issue of importance from the standpoint of quality change is

the construction of an index which can be utilised to correct the price index of all new houses. A reasonable way of doing this is to examine the change in house size over the period and let this serve as a proxy for quality. This is reasonable to the extent that the price of housing is a proportionate function of size. (It is not being proposed here that prices are determined by costs plus mark-up rather than in a supply-demand framework; only that within the housing market at any given time different sized houses will command different prices). While there is evidence that an increase in floor area alone does not increase costs on a one to one basis (Jennings (1983,a)) the fact that bigger houses require more fixtures and finishing implies that, in practice, an increase in size brings about an approximately equal proportionate increase in cost — which is paid for by the purchaser.

The quarterly index of size for planning approvals can thus be used as a quality index, subject to some adjustment. The adjustment is made necessary because of the fact that plans approved in one quarter will not result in houses until several quarters later and it is the later quarter for which the house price index is defined. Kenneally and McCarthy (1982) suggest that the median lag between starts and completions is five quarters. Assuming that another quarter lag exists between approval and starts a moving average of floor size of houses for which planning permission has been granted, centred six quarters back, thus serves as a quality correction index. The resulting quality corrected real price index is given in Figure 2.3.

The information contained in Figure 2.3 underlines very much the conclusions which were arrived at by Duffy (1980), whose data — though limited time wise — are more reliable. The data points are annualised averages of the quarterly figures obtained from the *Quarterly Bulletin of Housing Statistics* deflated by the Consumer Price Index and standardised by the planning approvals index. It is clear that the uncorrected data considerably overstate the degree to which house prices have been rising. Any statistical analysis of the housing market which examines the behaviour of prices must thus be cogniscent of this.

As a final word on the housing quality issue it must be recognised that quality has here been defined only in terms of the structural characteristics of housing and not in terms of environmental characteristics. For example, the growth in urban areas (particularly Dublin) has meant that new houses tend to be further from the central business district and this involves greater daily commuting time to and from work. Thus, the indices which have been presented should not be interpreted as all-encompassing hedonic indices. (See Jennings, (1983, a).)

This concludes the discussion of the basic trends in the housing market in the 'seventies. In the following sections attention is focused upon the behavioural aspects of the participants in the housing market.

FIGURE 2.3: *The real price of new houses* *

*The real price is defined as the price of houses relative to the consumer Price Index: 1970 = 1.0 1980 = 1.47

2.111 *The Rate of Return to Investments*

An understanding of the forces which determine asset prices in the spectrum of markets is important because it facilitates a recognition of why certain patterns emerge in these markets. It is also important because it casts incentive formation in a behavioural as opposed to an accounting framework. An example of this is the following. The increasé in land prices which has accompanied the increase in housing prices, if viewed in an account framework, would indicate that land prices have caused the increase in house prices — since land is an input into the production of houses. A behavioural view would recognise that the demand for land is a derived demand, dependent upon the market for the final good. Schemes designed to moderate rising house prices could thus either take the extremely different forms of subsidising the owners of land or abolishing the subsidies to house purchasers, depending upon the approach adopted.

A general theory of asset pricing rests upon recognising that investors seek to maximise their post tax real returns. Consequently, when disequilibria occur or when innovations take place in markets a reallocation of resources follows such

that returns tend to be equalised. This tendency is made possible through variation in asset prices. To illustrate this consider the simple two sector model developed by Harberger (1964) illustrated in Figure 2.4.

In equilibrium the return in each sector (abstracting from risk premia) is given by r_0 with the resources K_a and K_b invested in each. The schedules A and B define the (diminishing) returns to different amounts of capital invested in each sector. Say now that the rate of return in sector b increases as a result of some government incentive. The rate of return schedule thus increases from B to B^1. With only K_b invested in this sector the private returns in sector B exceed those in sector A. Resources are thus shifted to the sector with the highest returns until the post tax returns are once again equalised at r_1. In Figure 2.4 resources to the amount of $K_a K_a^1$ have been moved to sector B.

The similarity between this and the mechanism described in Section 1.II should be apparent. Investors reallocate resources so as to maximise *private* returns. But in this example the *social* returns available on investment *not* undertaken in sector A exceed those on the marginal investments actually undertaken in sector B.

What is meant by capital invested? This capital allocation can refer either to a physical movement of resources from one sector to another or, in the case of fixed capital, to a change in the *value* of the resources tied up in the different sectors. If this model is interpreted in terms of capital invested in housing (sector B) and capital invested elsewhere (sector A the mechanism which equalibrates post tax returns in the economy requires that, since accretions to the physical stock take place very slowly (the rate is about $2\frac{1}{4}$ per cent per annum at present), measures which benefit all owners of housing (for example, the abolition of property taxes) will be capitalised in the *price* of the house. Does this then mean that measures which increase the return on new houses will affect only the amount of physical resources allocated to them and not their price? Clearly not, since such measures will induce a switch in demand away from secondhand to new houses where the return is now higher, the price of new houses will be bid up until a uniform return again obtains. In the long run the allocation of real resources between the sectors will depend upon the price elasticity of supply of land if other factors are supplied perfectly elastically. If higher house prices become capitalised in higher land prices there will be no tendency for more real resources to drive down the rate of return on housing, whereas with an elastic supply curve of land an increased amount of real resources will be so directed. (Throughout the text it is assumed that long-run supply elasticities exceed the short-run elasticities in the housing sector but that supplies are not infinitely elastic (see White and White (1977)). How inelastic supplies are in the short run obviously depends upon the length of the time period so defined).

FIGURE 2.4: *Capital allocation in a two sector economy*

(a)

(b)
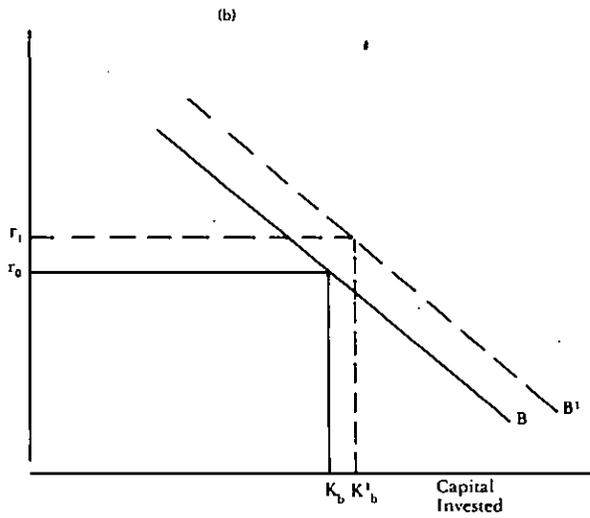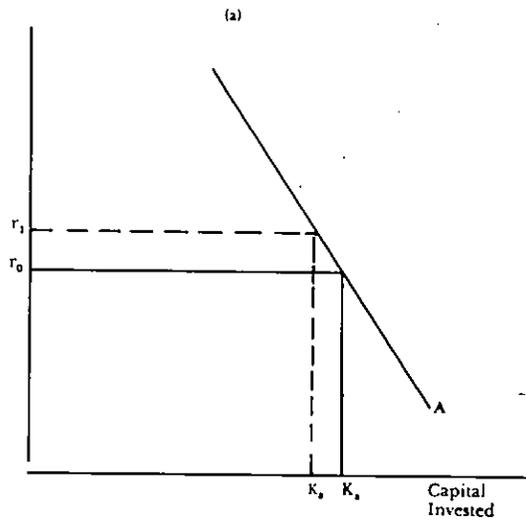
To return to the original question posed at the start of this section: It is important to distinguish between accounting and theoretical approaches to pricing mechanisms. Rising prices cannot ultimately be countered in a market context by subsidisation to purchasers. The effects of subsidisation, while perhaps decreasing the net cost of purchase, are to increase the gross price of the product benefiting from the subsidy, with the exact degree of such an increase depending upon the supply elasticity.

2.IV *Income Taxation and the Demand for Housing*

The system of income taxation in Ireland, under which, for the period in question, almost all mortgage interest payments have been deductible in computing taxable income, is widely believed to be a strong incentive to purchase housing. This is particularly true for the non-agricultural sector where the incidence of income tax is highest. With growing inflation in the 'seventies and limited *de facto* indexation of the income tax schedule, households have been pushed into higher marginal tax brackets as a result of increases in income which, in many cases, were no more than the rate of inflation. (This aspect of the income tax schedule has been documented by Dowling (1977), and Hughes (1982)). Thus, one way of having a lower marginal tax rate (i.e., a higher real income) has been to increase the amount of interest payments on a mortgage.

In this section the notion that mortgage interest deductibility has been a reason for stimulating house purchase is examined. In the following chapter (which deals with the various aspects of the cost of housing) evidence is presented on the degree to which potential house purchasers have faced an increasing marginal tax rate over the period in question. While the results of the latter substantiate the belief that increasing marginal income tax rates have materialised, it will be argued here that the view, that this reason for more housing investment, does not stand up under close examination.

The argument embodied in the conventional wisdom briefly outlined above has very limited validity once it is recognised that, until 1982, there was effectively no distinction in the income tax code between interest deductibility for house investment purposes and any other type of investment. Indeed interest payments incurred to finance consumption expenditures were equally deductible. Hence, there has ostensibly been nothing in the income tax treatment of *mortgage* interest to encourage investment in housing over any other type of expenditure. Why then has the belief grown up that housing investment has been given special status in the tax system?

A major reason for the tax induced expenditure on housing has been the non-taxation of imputed income which accrues to homeowners. Investments in

bonds or stocks, for example, yield an income stream which is taxable whereas the consumption of shelter (imputed income) is almost completely tax free since the abolition of rates in 1978. Investment in housing has been the major method of avoiding double taxation of savings in this period.

A second reason why housing, rather than other forms of investment, should be encouraged relates to the degree of perfection of the capital market. Not all investments are equally attractive forms of collateral. Summers (1980, p. 430) points out:

> The fact that mortgage debt is the principal or only financial liability of many households suggest that housing investments are easier to borrow against than other alternatives. This may be because of their risk characteristics or of institutional constraints.

This is a key constraint. While in some instances stocks can be used as collateral for borrowing to invest in them they are a less attractive collateral than a house from the financial intermediary's standpoint due to their greater short-term variability in price. For example, what would the optimal policy be for a lender if the leverage of the borrower/investor goes to infinity (equity goes to zero) due to a price fall in the stock? Variation in house prices is rarely sufficient to reduce the owners equity to zero due to the down payment requirements (which vary with the state of both the housing and mortgage markets). Likewise, institutions exist in Ireland (building societies) which have the specific goal of investing in housing. Their rapid sustained growth has enabled them to become the largest single source of housing finance. If the structure of the financial system were different the structure of loans would likely be different.

Third, the tax system has had an effect on housing investment through its treatment of building societies. Mortgage rates tend to be lower than rates charged to potential investors in stocks. This is due to the higher post tax returns which depositors in building societies can obtain (even though the nominal return may be lower than from other forms of liquid asset investments) because of the relatively favourable tax treatment of building societies. By being able to attract funds at a lower rate than most institutions they can correspondingly lend at a lower rate. (At various times some other institutions have also benefited from the non-taxation of interest paid upon small deposits — for example the Post Office).

Fourth, the non-taxation of capital gains on housing has set it apart from other assets.

It has also been argued (see Feldstein and Poterba (1980) for example) that the tax system is not neutral in its effect on portfolio make-up when the rate of inflation varies. Because of the use of historic rather than replacement depreciation allowances and the treatment of inventories the effective rate of

corporate taxation rises with inflation. Feldstein and Poterba have argued that, in the United States, the effective rate of corporate taxation rose from 55 per cent in 1965 to 75 per cent in 1979. With post tax returns changing asset prices will respond. However, with the effective instantaneous write off allowances on corporate investment in Ireland this has not been a factor over the period.

It has further been frequently suggested that, in times of inflation, investors prefer a physical rather than a paper asset and hence the demand for housing has increased relative to the demand for stocks. But this claim has only apparent meaning since stocks do represent a claim on physical capital. The real question concerns why Tobin's "q" might fall in times of inflation. (Tobin's "q" is the ratio of the market valuation of assets to their replacement cost.) The only validity to this type of argument is that in time of uncertainty investors prefer a real asset to one which has a return denominated in fixed terms.

In conclusion, we have argued here that interest deductibility for income tax payments is not, *per se,* and contrary to popular belief, the reason why investors have found housing to be such a desirable asset. The taxation system, in various ways, has favoured house purchase. Housing has become a desirable asset for reasons of non-taxation of imputed rent and capital gains, inflation, suitable collateral and differential tax treatment of the financial institutions which supply funds to potential investors. If it is deemed desirable to influence investment behaviour in different assets it must be recognised that these are the factors in the current institutional set up which have generated the high returns to housing and that, while interest deductibility *engenders* high returns to housing, it is not sufficient to guarantee such returns.

2.V *Space Invaders and the Optimal Amount of Housing*

One of the most important aspects of housing policy — and one which has received little attention — concerns whether or not there exists a structure which promotes the efficient use of space. For example, do policies exist which enable households to consume the amount of housing services they desire at given prices or do policies exist which encourage households to live in houses which are too small or too large?

A clear distinction needs to be made between two concepts of need. The first is one which is defined in a strongly normative sense. For example, it might be decided that a desirable allocation of housing in the economy is one in which space is distributed such that each person should have 1.5 rooms or 400 square feet of living space or some such allocation. With such a norm a set of policies which would result in a small variance around this goal would be superior to one which yielded a larger variance. A second concept is one according to which, given the distribution of income, policies would be defined as fulfilling

needs if they facilitated the consumption of the desired amount of housing. Such a goal would likely imply that policies would be efficient if high income families have bigger houses than low income families given that housing has a positive income elasticity of demand. In essence such "policies" would consist of little intervention other than to eliminate market imperfections.

(a) *Financial Issues*

The evolution of events in the 'seventies has been such as to provide incentives to households to hold larger mortgages. Many observers have (incorrectly) equated this with the notion of "trading up".

Consider a family which has paid off much of its mortgage and wishes to avail of greater interest deductions on its income tax payments. This it could do, in theory, by moving to a different house of exactly the same size and price, divert some of the equity from the previous house to another purpose, thereby taking a larger mortgage on the new property and benefit from the interest relief. All without gearing up to a larger house. In this way, a family could continually take advantage of almost the full deduction without ever purchasing a larger house if the family were willing to move with sufficient frequency. But if this is so why has it been argued that the search for greater income tax deductions, in the form of mortgage interest relief, has led to a demand for *bigger* houses as opposed to *different* houses with a higher mortgage?

In addition to the reasons already discussed in the text as to why individuals move vertically rather than laterally (i.e., expected capital gains, income growth, mortgage interest deduction, etc.) the following institutional considerations are important. In the first place, the "siphoning" of mortgage funds to non-investment purposes would seem to be minimal in Ireland. Evidence exists for the US that substantial amounts of money designed to finance housing have found their way to other destinations. This is done simply, as described above, by not reinvesting all of the equity from an existing house in a new house. Downes (1980) points out that, in the US in 1979, studies show that, on average, one-third of existing equity was not directed towards investment in the new house, almost one-third of families shifted half their equity to some other purpose and over 80 per cent of families moved some equity out of housing. This behaviour is perfectly reasonable as far as the individual investor is concerned. He is rationally acting to minimise tax payments. However, the result of the government's policy of mortgage interest tax relief in these cases is the simple subsidy of consumption. It is thus interesting to find in Ireland that one of the effects of the nature of the supply of mortgage funds — in a market which has been characterised by occasionally negative real interest rates and consequent rationing — if such siphoning does

not seem to occur on a substantial scale due to the sometimes limited funds available and the consequent tendency for the building societies to require that all existing equity be applied to the purchase of the subsequent house. In a more competitive market with positive real interest rates financial institutions would be willing to lead to any applicants with sufficient collateral.

While it might be thought that the provisions of the Irish income tax laws — which until recently have permitted all interest deductions irrespective of the purpose of borrowing (unlike the US) — would obviate the need to siphon funds in such a way, the important aspect of the ability to make *large* tax allowable borrowing is the role played by collateral. It is this role which housing can fulfil in the financial market.

Incentives to gear up have, furthermore, not been limited to the role played by the income tax schedule. The consequent greater leverage, for example, brings about greater capital gains or losses on a fixed investment. But it should be recognised that the higher marginal tax rates *per se* have only encouraged greater indebtedness and *not* caused the gearing up to large houses. The accompanying move to larger dwellings (apart from being motivated by expectations of greater capital gains) has been due to the nature of the supply of funds in the market place and to the desire for higher quality housing which the generally rising real incomes in the 'seventies have brought about.

In the second instance there are transactions costs associated with moving. Since these costs are high in Ireland, due to stamp duty and fees, more than just occasional moves are discouraged. Baker and O'Brien (1979, p. 64) and Wall (1984) illustrate that the costs of moving can easily exceed ten per cent of the value of a house. Hence, a family considering a move has not simply an incentive to take advantage of the full interest deduction and no more, but to purchase a house which will require interest payments in the early years greater than the maximum permissible for the tax deduction. Some interest deductions can rationally be forgone in the early years of a mortgage, not simply because the interest deductions will be greater in succeeding years than if a smaller house had been purchased, but because the larger house, *qua* consumption good, yields greater utility to the owner than a smaller house and, in addition, the owner can hope that the interest deduction allowance will be increased with inflation in the following years (as has happened periodically since 1974). A corollary of this institutional framework, in which tax incentives are balanced by moving costs, is that owners should circumvent the high transactions costs associated with moving by simply making mortgage financed physical additions to their existing house.

(b) *Demographic Issues*

One way of viewing the demographic consequences of high investment levels

in housing is to examine the distribution of space per number of persons housed.

The percentage of house buyers made up of single person households has increased in recent years. Data are available only from 1977 (see "Housing Loan Statistics" DOE, 1981) but indicate that the percentage of mortgage borrowers made up of single individuals (whose intention is to marry, or otherwise) has risen from 38.5 per cent to 42 per cent over the period 1977–1980. In the Dublin area the change has been from 38.7 per cent to 47.2 per cent. This is a more informative statistic, investment wise, since it effectively excludes agriculturally based buyers who in the past, by not paying income tax, have had less to gain by investing. While this time period is too short to enable general inferences to be made, a possible implication of the increasing proportion of single individuals investing in housing is that the market may be allocating living space in a high variance manner.

This interpretation, however, might be incorrect since it is not known whether a high or low proportion of unmarried new house buyers actually occupy the dwelling. Paradoxically, a large scale purchase of new housing by single people and subsequent letting to larger family units can lead to a very efficient use of space — conceivably more efficient than if those houses were occupied by two person married couples.

But even the consideration itself of policies designed to more fully utilise the housing stock begs normative questions. In particular, if family size is treated as exogenous then it would probably be deemed socially desirable that more space be allocated to larger families, whereas if family size is treated as a matter of choice this would not follow. Ultimately it is consideration of the (choiceless) offspring which dictates more favourable treatment to larger families.

While current policies on space allocation are primarily directed at the flow of new housing (for example, until recently the grant structure has been directed primarily at the married rather than the unmarried), given that annual accretions are small relative to the stock it would be fruitful to examine how the existing stock might be better utilised.

Typically, the amount of space required varies over the life cycle and thus if the transactions costs associated with moving could be reduced there would be greater incentives for the existing stock to be held by households in a way which corresponds to their tastes and needs. This is an area of housing policy which requires much more attention than has previously been devoted to it. The simultaneous existence of overcrowding and underoccupation reflects a very wasteful use of the stock of housing. While it is unrealistic to believe that older families would universally be interested in moving to smaller dwellings at the "empty nest" stage of the life cycle (social ties are frequently too strong to facilitate this) lower transactions costs would be one way of providing an

economic incentive to those who would wish to make such a change but are deterred because of the financial costs in the form of legal fees, estate agent's fees and stamp duty.

An important corollary of this is that the historic goal of high rates of homeownership has perhaps been pursued beyond an optimal point. With almost every conceivable policy directed to ownership at the expense of the development of a rental sector, the mobility of the population has been curtailed very greatly. This has meant that, rather than occupying rented accommodation at the early and late stages of the life cycle — as more typically occurs in economies with lower rates of ownership — households tend to use the existing stock of housing very inefficiently.

The pattern of externalities which has resulted from this should not be viewed as minor or academic. The concentration upon new houses, at the expense of rental accommodation and maintenance of the existing stock, has brought about a pattern of urban sprawl, particularly in the Dublin area, with all of the expected consequences (i.e., high transportation costs, urban congestion, etc.). Again, it must be recognised that, even in the absence of the system of new house purchase incentives, the demographic and income growth in the 'seventies would have acted as to bring about a similar pattern of development in any case. But policies geared toward the prevention of urban decay and a recognition of the value of a well developed rental sector would certainly improve the utilisation of existing space and bring about a more desirable pattern of development.

Chapter 3

THE COST OF CAPITAL AND THE COST OF HOUSING

3.1: *Introduction*

The rising price of houses has in the past led to a considerable degree of concern on the part of almost all governments over the ability of families to afford housing. The consequences of such concern have come in the form of incentives to buy, and subsidies for, housing. What has been notably absent in this process is a clear formulation of exactly what the cost of capital has been for purchasers. Emphasis has frequently been upon, for example, the mortgage rate to be paid by investors or grants to be received, to the exclusion of considerations such as capital gains or imputed income.

The purpose of this chapter is to fill this informational gap by developing a numerical cost of capital series for the period 1970-1980. It is hoped that this will have two effects. First, that policies which are geared to helping potential home owners will take account of the *overall* picture of costs and subsidies and that, as a consequence, policies could be adopted with a fuller understanding of their likely consequences. The second hope is that such a data series might, in the future, facilitate the efforts of econometricians in their examination of the qualitative and quantitative channels of influence in the housing market. It will be argued in Chapter 4 that data deficiencies have been one of the reasons why econometricians have not, to date, been able to build successful models of the new housing market, and the sooner that such models can be built the more reliable can decision making be made.

Two notions of the cost of capital must be distinguished. The first is an *ex-post* concept defining what the cost has been in a certain period, the second defines what potential buyers estimate it will be in future periods. The difference arises because not all values entering the cost of capital are known *a priori*. For example, capital gains can only be *estimated* for future periods but the actual values are known for past periods. In econometric modelling the expected cost is what determines the purchase decision.

In Section II of this chapter we focus upon the role which the income tax system has played in the 'seventies. Section III of the chapter deals with how the cost of capital can be measured and some estimates of the cost of capital are presented in Section IV.

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3.II *Gross and Net Costs — The Effects of the Tax System*

When considering an investment, the returns to which are affected by the taxation system, an investor will examine the post tax returns in order to determine whether or not the investment is profitable. In the same fashion, when investing in housing, a potential purchaser recognises that, not only are the returns to such an investment untaxed, but that, for the most part, the interest payments made on borrowings to purchase the house are deductible from taxable income when computing tax payments. Clearly, the higher the marginal tax rate faced by an individual the greater is the value of such deductions which the income tax system permits. It is widely believed that the marginal tax rate which typical potential house buyers have faced in the 'seventies has increased and that this has acted as a stimulus to house purchase.

In this section estimates of such tax rates are presented. The purpose of this is (a) to provide somewhat more exact figures than those typically used in the discussion of the role of the tax system, and (b) so that a net cost of capital series can be developed for the period.

The exact measurement of the evolution of marginal tax rates for house buyers is difficult due to the paucity of data. However, the general trend in this can be gauged by examining the changes in rates, allowances and bands for the period. Information on this — based upon the pattern of average industrial wages and the Consumer Price Index — is given in Table 3.1. It is clear that, despite changes in personal allowances, the tax brackets have changed rather little since the introduction of the integrated income tax system in 1974. With nominal incomes increasing by about a factor of 2.7, many households have been paying inflation induced higher rates in the late 'seventies. (These effective tax rates slightly underestimate the change due to the omission of the Pay Related Social Insurance (PRSI) contributions from 1979 onwards. But these are neglected here since they are levied on gross incomes and cannot thus be reduced by obtaining greater tax allowances – through, for example, mortgage interest deductions.)

The most striking aspect of the tax brackets has been the large width of the standard rate band relative to the steep progressivity in the rate encountered above a taxable income of about £4,500. In this regard it should be noted that the effective marginal rate has not increased for most households earning the average male industrial wage, since the taxable income of this group has remained in the wide standard rate band. Nor apparently has the average rate payable by all taxpayers been increasing. But this is due to the fact that, as some taxpayers move to higher bands, more taxpayers are being brought into the net at the lower rates. (The consequence of more tax payers entering the tax net at the lower end means that the tax rates on *household* income may increase even though the tax rate of the average *tax payer* has not.)

Of course, the issue of interest is not the behaviour of the tax rate of the typical industrial worker but rather the tax rate of the typical house buyer. While sufficient data are not available to establish this exactly data have recently been published by the Department of the Environment (DOE) which make estimates possible. Table 3.2 contains information on the annual average of the quarterly income distribution of new house purchasing mortgage recipients. The source of this is "Housing Loan Statistics 1977-1980" (DOE (1981)). If the brackets were not open ended a mean income could be estimated, though, as already argued, even a mean income level would not be sufficient to indicate the average of the marginal tax rates payable by house purchasers – because the mean of the marginal rates is not the same as the marginal rate for the mean unit. What is really required is the income distribution of the house buyers over a period. Figures 3.1, 3.2 and 3.3 indicate that the latent distribution is skewed to the right and might be approximated by the lognormal or loglogistic – a reasonable hypothesis where income distribution figures are concerned. Accordingly, by estimating the parameters of the underlying distribution and assuming that only its position (rather than form) changes over time an income distribution for house purchasers can be estimated quite straightforwardly as follows.

For computational simplicity we assume that the distribution is loglogistic in income. The distribution function is given by

$$F(x) = \exp (\alpha + \beta x)/ \{1 + \exp (\alpha + \beta x)\} \qquad (3.1)$$

where x is the logarithm of the income brackets. By estimating the parameters α and β from the regression

$$\log[p_i/(1 - p_i)] = \alpha + \beta x_i + \varepsilon_i \qquad (3.2)$$

where ε_i is a well behaved error term and p_i is $F(x_i)$ for the years 1978, 1979 and 1980 the moments of the underlying distribution can be obtained. The mean and standard deviation of the logistic distribution are $\mu = -\alpha/\beta$ and $\sigma = \pi/\sqrt{3}\beta$ (see Cox (1969), p.101). Recognising additionally that the logistic and normal distributions are almost identical numerically (see Cox (1969) p. 28) the mean of the *income* distribution is given approximately by $\exp (\mu + \frac{1}{2}\sigma^2)$ (see Theil (1971) p. 75).

The results of this estimation indicate considerable stability for the three years for which data are available. Having estimated Equation (3.2) for each of the 3 years the parameter estimates yield predicted mean incomes of £5,293, £5,994 and £7,023. These are, respectively, 1.19, 1.22 and 1.20 times the average industrial earnings for males (see Table 3.2). In addition, the coefficients of variation for the logistic distribution are 0.050, 0.048 and 0.050. In light of these findings it is not unreasonable to assume that the coefficient of variation for the log of the income distribution is constant over the period and that the mean of

Table 3.1: *Rates on taxable income* 1974–1981

	1974/1975		1975, April		1975, June[a]		1976/1977		1977/1978		1978/1979		1979/1980		1980/1981[c]	
	26%	1,550	26%	1,550	26%	1,550	26%	<1,550	20%	<500	20%	500				
	35%	4,350	35%	4,350	38.5%	4,350	38.5%	4,350	25%	1,500	25%	1,500	25%	<1,100	25%	<1,000
	50%	6,350	45%	6,350	49.5%	6,350	49.5%	6,350	35%	4,500	35%	4,500	35%	4,100	35%	5,000
	65%	8,350	55%	8,350	60.5%	8,350	60.5%	8,350	45%	6,000	45%	6,000	45%	5,600	45%	7,000
	80%	>8,350	65%	10,350	71.5%	10,350	71.5%	10,350	50%	7,000	50%	7,000	50%	6,600	55%	9,000
			70%	>10,350	77%	>10,350	77%	>10,350	60%	>7,000	60%	>7,000	60%	>6,600	60%	>9,000

Allowances

	1974/1975	1975, April	1975, June	1976/1977	1977/1978	1978/1979	1979/1980	1980/1981
Single Person	500	575	575	620	665	865	1,115	1.515[b]
Married Couple	800	920	920	1,010	1,100	1,730	2,230	2,630[b]
Child	200	230	230	240	240	240	218	195

Annual Average Industrial Earnings in Transportable Goods Industries (June)

Male	1974: 2,186	1975: 2,748	1976: 3,189	1977: 3,861	1978: 4,430	1979: 4,909	1980: 5,875	
Female	1,103	1,420	1,672	2,018	2,421	2,733	3,428	

Consumer Price Index (June)

	173	216	251	286	303	341	410	

(a) Supplementary budget in which a 10 per cent surcharge was levied on all brackets above the 26 per cent rate.
(b) Figures include £400 schedule E employment allowance for one working person only.
(c) In 1980 the income tax bands for a married couple are double those listed here.

the income distribution is 1.2 times the average earnings. Consequently the availability of the series on mean earnings enables us to estimate earnings distributions on the basis of knowing the moments. From this point the estimation of the progress of average tax rates over the period is obtained by simulation. By generating the income distribution through drawings of random normal numbers with the appropriate mean and variance (now known), taking exponentials of these numbers, computing the tax allowances for different household structures and averaging their marginal tax rates so obtained, we arrive at the figures presented in each row of Table 3.3. This process is repeated for each year to give the information for the whole time period.

Given the very strong trend evident in these figures (with the exception of 1980) and the assumptions made in computing them, some comments on possible biases are in order.

Table 3.2: *Incomes of mortgage loan recipients*

Year	£3,000	£3,000–£4,000	£4,000–£5,000	£5,000–£7,000	£7,000–£9,000		£9,000	Average Industrial Wage
1978	10.7%	20.3%	24.9%	26.5%		17.6%		£4,430
1979	7.1%	16.1%	17.8%	31.8%	16.0%		11.2%	£4,909
1980	4.3%	12.3%	10.6%	30.1%	23.4%		19.3%	£5,875

Apart from neglecting the PRSI contributions there are two reasons which make the figures conservative, in the sense of exhibiting less change than may actually have been the case. First, the earnings of spouses have been omitted. The increasing trend in the labour force participation of women and the tendency for people to marry those of similar economic backgrounds (Rivlin (1975)) make the degree of underestimation in the marginal tax rates in the later years greater than in the early years. This possibility is particularly likely for 1980 (see below). Second, there may be a sample selection bias associated with the use of the factor 1.2 times the average wage as a means of deriving the income distribution for the early years. This could arise because, if people had not been moving into the higher tax brackets as a result of inflation, there would have been less of a tendency for higher income households to purchase housing. As a consequence, the scale factor for the earlier years may be just 1.1 or 1.0 and such a figure would yield lower tax rates for those years.

The rate computed for 1980 shows a big decrease over 1979 for married households. This is because of the income splitting provisions then introduced. It is clear that from that time onwards the income tax schedule offers a much greater incentive to single individuals to purchase housing than to married couples. Since the trend towards a greater percentage of housebuyers to be made

FIGURE 3.1: *Income distributions of house buyers*, 1978
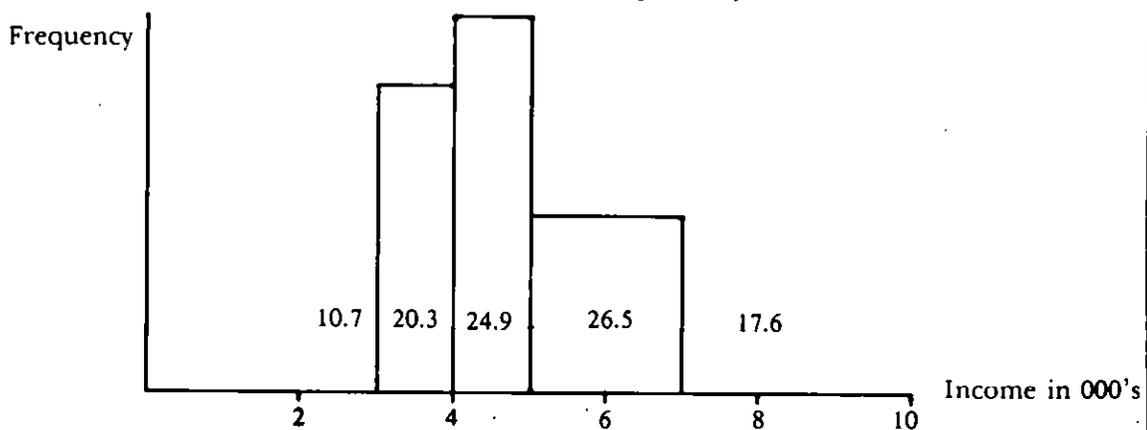
FIGURE 3.2: *Income distributions of house buyers*, 1979
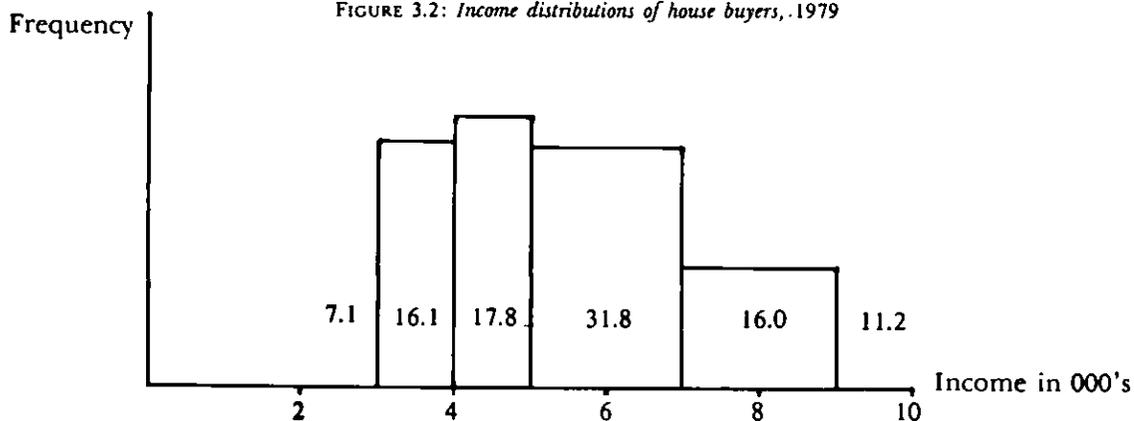
FIGURE 3.3: *Income distributions of house buyers*, 1980
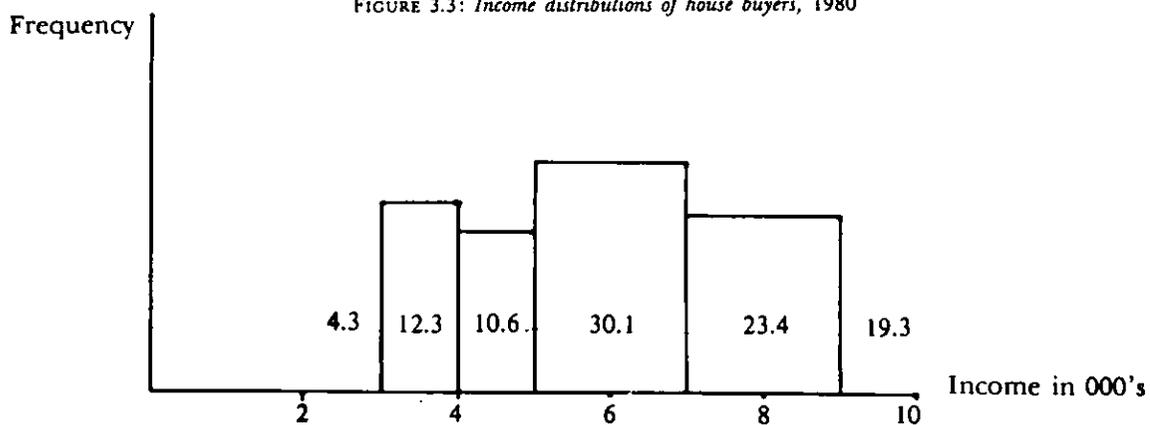
up of single individuals became manifest before 1980 the changes in income tax schedule can be expected to accentuate this *ceteris paribus*.

In contrast to the possibilities for understatement of the marginal tax rate, there are factors which may lead to bias in the opposite direction. First, some of the new housebuyers/builders are in the agricultural sector where the marginal rate of tax is usually zero. Second, there is the possibility of overstatement of income to the lending agencies. The fact that the computations indicate that the average house buyer has an income only 1.2 times that of the average industrial wage earner should not be interpreted to indicate the unlikeliness of such an overstatement, since the average industrial wage is computed for people of all ages while the typical house buyer is at an early stage in the life cycle, generally before the peak in the earnings profile is attained. On balance, however, it is unlikely that these influences are strong enough to counterbalance factors such as the neglect of a second income in a new house buying family.

We can conclude from this analysis that, on the basis of the information available at present, the conventional wisdom regarding increasing tax rates is indeed strongly borne out.

Table 3.3: *Estimated average marginal tax rates for new house buyers, 1969–1980*

Year	Single person	Married couple	Married couple with one child
1969	26.5	26.3	26.3
1970	27.2	27.0	26.9
1971	27.6	27.2	27.0
1972	28.7	28.2	27.6
1973	31.0	30.2	29.8
1974	32.8	31.4	30.1
1975	39.7	37.5	36.2
1976	41.0	38.8	37.6
1977	40.6	38.5	37.9
1978	42.5	38.8	37.6
1979	45.0	39.9	38.6
1980	45.3	24.9	24.5

3.III. *The Cost of Capital for House buyers – Theory*

The cost of an owner-occupied house should be distinguished from its purchase price. The cost of a house in any time period is here defined as the holding cost and this is related, in a non-linear fashion, to the price.

At the outset it should be realised that the cost of house purchase is not an unequivocal concept. For example, the cost of purchasing a secondhand house

is not the same as the cost of purchasing a new house due to the system of grants or the different treatment of stamp duty. Nor is the cost of a house independent of the ratio of down-payment to mortgage obtained due to income tax regulations. Likewise the cost of house purchase is not synonymous with annual carrying costs, since, for example, the grants payable to new house buyers are concentrated in the early years. (The carrying costs, given the mortgage subsidy scheme operating since 1981, actually increase in the first few years). The cost of capital thus differs for different house buyers and in this regard is conceptually distinct from what is customarily regarded as a price or cost, i.e., a measure which is constant across economic agents in any given time period. Thus, what emerges from constructing a cost of capital series is the cost for a typical potential house buyer, not the cost for every house buyer.

Defining P_t as the market price of a house is period t, γ_t the proportion of equity owned, r_{mt} the mortgage interest rate, r_{ct} the opportunity cost of capital, D_t the depreciation rate, M_t maintenance costs, T_t taxes attributable to home ownership, G_t grants and $\dot{P}_t$ the expected change in price in year t, the gross effective cost of housing services in year t, (C) is thus

$$C_{gt} = \gamma_t\, r_{ct} P_t + (1 - \gamma_t) r_{mt} P_t + D_t + M_t + T_t - G_t - \dot{P}_t \tag{3.3}$$

The first term of this equation is the opportunity cost of equity and might also be considered to be the imputed income to equity, the second represents mortgage interest payments. The term $\dot{P}_t$ states that if there is a capital gain the effective cost is lowered.

Several points are to be noted in this formulation. $\dot{P}_t$ is the actual rather than the expected capital gain. If the cost of capital series were to be interpreted in an *ex-ante* rather than *ex-post* sense (for example as a variable in an econometric model $\dot{P}_t$ would have to be replaced by $\dot{P}^e{}_t$, i.e., the *expected* price appreciation. This could be modelled, as is typically done, by using a time series representation for $\dot{P}_t$ (see for example Rosen and Rosen (1980)). Further, as there is no taxation of capital gains on owner occupied houses in Ireland the full gain enters the cost. This means that it is possible to have a negative cost of housing services in years where price appreciation is large. (This can materialise quite easily, see Atkinson and King (1980)).

Transactions costs (as distinct from taxes) have not been included explicitly but can be captured through the variable M. Depreciation and maintenance have been specified to be independent of the age of the stock.

The specification of taxes (T) independently of the price does not imply that taxes are not capitalised in price ultimately. The market mechanism will ensure that, if T falls in any period (as, for example, with the remission of rates in 1977/78), the resulting lower effective costs will boost demand and hence price by some percentage of the capitalised value of the tax changes.

The above specification of housing costs is "gross" in the sense that part of housing costs are deductible for tax purposes. This interpretation of gross is not to be equated with gross in the sense of not including capital gain. To arrive at the net cost of housing, allowance must be made for these deductions. Thus, defining δ_t as the percentage of each pound spent on housing which is tax deductible (defined in Equation (3.6) below) and τ_t the marginal tax rate, it follows that the net cost of housing services is

$$C_{nt} = (1 - \delta_t \tau_t) C_{gt} \qquad (3.4)$$

It is appropriate at this stage, before proceeding to examine how numerical estimates of the cost components can be developed, to consider the more general aspects of using the above described neo-classical type formulation of the cost of house purchase. The major advantage of this is that it makes possible the simultaneous examination of the effects of such variables as interest rates and price changes. It is theoretically unsatisfactory to assume that the effects of these can be examined separately. For example, in periods of rising mortgage rates expected capital gain might be large and hence the effect of higher rates could be associated with an *increase* in demand. But if higher rates are accompanied by a small expected capital gain a *decrease* in demand would be expected. Thus, in econometric models it should not be surprising if the individual influences of interest rates and price expectations turn out to be insignificant or ostensibly perverse.

What of the difficulties? While this approach yields insights into the real cost of housing there are certainly approximations associated with representing a world of discontinuities, non-price rationing and imperfect markets by one in which smoothness is imposed.

On a broader level, this specification of the cost of housing is a single period representation of a variable which takes on different values over time, and in making a tenure choice decision the relevant cost determinant would be more than just the one period magnitude of the variable. For example, grants are generally concentrated in the very early stages of home ownership while property taxes ("rates") for much of the 'seventies were levied on a gradually increasing basis. Likewise, maintenance and depreciation costs are not independent of the age of the building. As a consequence, care must be taken in both the construction of the cost variable and in the estimation of econometric models in accounting for such time variations in the measure.

A second issue which is germane relates to "for whom" the cost of capital should be defined. Given the differing circumstances of buyers the cost of purchase will vary from one to another. For example, those purchasing houses too large to qualify for grants will not be beneficiaries from this source of finance. Since this is an aggregate study of the behaviour of house buyers the approach adopted in dealing with measurement is simply to consider the

typical individual. Thus, the cost of capital represents an average cost for those who purchase during the period.

The last issue which warrants examination from the theoretical standpoint is whether or not capital gains should be included. It is argued at times that, since households who invest in a home rarely sell it and move to a rented dwelling, capital gains are not realised. While it is true that rented dwellings do not offer the occupier the same flow of services offered by a home (Bossons (1978)) and the two are thus not perfect substitutes, it is clearly false to assume that capital gains should not be included as a component in the cost of capital since households *could,* if they so wished, realise such gains. To argue that capital appreciation not be incorporated is equivalent to proposing that returns to an investment be made dependent upon the motives of the investor. Thus, if households choose never to realise the gains — by, for example, moving to a smaller dwelling at a later stage of the life cycle — the gains are indeed paper gains. But this choice should not be equated with the belief that the gains are non-existent.

3.IV: *The Cost of Capital: Measurement*

In this section estimates are presented of the magnitude of the gross and net costs of capital as defined by Equation (3.4) for the period 1970-1980. The implications of the figures are then examined. The section proceeds by simply examining each component of Equation (3.3) and a description of the various institutional details affecting each component is offered.

(a) *Price Changes*

The price appreciation term is taken as the one period *ex-post* changes in prices.

(b) *The Opportunity Cost of Capital* (r_c)

The opportunity cost of capital is approximated by the sub £5,000 deposit rate offered by the Associated Banks. The reason for the use of the sub £5,000 rate is that most new house buyers over the period in question would own less than £5,000 in equity. While, in the later part of the period, many purchasers would have had in excess of £5,000 in equity, small variations in the level of the opportunity cost of capital have almost insignificant effects on the cost of housing index, see Equation (3.3).

(c) *The Mortgage Interest Rate* (r_m)

The quarterly mortgage interest rate used is an average of the monthly rates published in the *Central Bank Quarterly Bulletin.*

A minor conceptual issue arises in relation to using a fixed rate of interest in Equation (3.3). Since interest rates on mortgages have been variable and hence future payments effectively unknown, we assume here that individuals view the current rate as the best estimate of future rates and that it is this estimate which governs their house purchase decisions.

(d) *Proportion of Equity Owned (γ)*

The proportion of equity owned for the average new house purchaser is unknown. This is because purchasers do not finance their houses in like manner and thus data cannot be collected. What has been used in this study is an estimate derived from figures on mortgage loans and average house prices. By dividing the average mortgage loan given by all institutions(defined as the value divided by number of loans) by the house price index a quarterly series for γ emerges.

This is probably an underestimate of the true value of γ since some purchasers of new houses (e.g., second time buyers or farmers) likely carry more equity upon purchase than those buyers who borrow from the traditional sources. But this is not a major concern since, given r_{ct} and r_{mt} are close in value, even substantial errors in γ would not change the cost of capital appreciably.

(e) *The Price of Houses (P)*

This series is obtained from the *Quarterly Bulletin of Housing Statistics*. It is the average price of all houses for which mortgage loans are approved in any quarter by the major lending institutions. This series has been deflated by the quality change index (discussed in Chapter 2) to yield a constant quality house price index based upon the typical house built in 1970, 1. To obtain the real (or relative) price of housing this can be divided by the Consumer Price Index (CPI).

(f) *Depreciation (D) and Maintenance (M)*

In accounting for maintenance and depreciation we depart from the practice of previous authors, e.g., Rosen and Rosen (1980), Laidler (1969), Aaron (1972), White and White (1977) who typically use values of 2 per cent to 2.5 per cent of the *purchase* price of the house — drawing upon the 40-year depreciation standard in the US tax code. In inflationary times such an allowance would be trivial after several years while it probably overstates the true value for the first few years. Accordingly a figure of 1 per cent of the *current* value of the house is used.

It should also be noted that no inconsistency exists in the use of both capital appreciation (P) and depreciation (D) terms. The capital gain term is estimated upon the basis of comparing a new house in period t with a new house in period

t+1. But when an investment is actually made the capital gain is associated with comparing a new house in period t with a one year old house in t+1. The depreciation term is required for this comparison.

(g) *Grants*

While regulations governing the receipt of grants over the period have varied there has been just one major change in the system of governments grants for new houses. Prior to 1977 a bi-level system of grants from Local Authorities and the Central Government constituted an important source of aid for new house buyers. This was replaced by a single £1,000 lump sum grant payable to first time purchasers of new houses in May 1977. Under the bi-level system the Department of Local Government grant was payable to the builder while the Local Authority grant (termed "supplementary") was payable directly to the purchaser. Thus in computing the G term in Equation (3.3) only the supplementary and £1,000 grants have been considered.

The value of a typical grant under the new regulations is here computed as the total value of grants payable to purchasers of new houses constructed in the private sector divided by the corresponding number of houses. Figures are obtained from the annual reports of the DOE.

Since the grant is a one-time rather than a recurring payment, it is incorporated into a change in the value of γ. That is, the effect of the grant is to increase the purchaser's share of equity in the house, not to lower its price.

(h) *Taxes*

The sole tax of any consequence on new housing during this period was in the form of a valuation tax, termed the "rates". This tax was abolished in January 1978. Prior to this date rates were levied on new housing which qualified for grants on a sliding scale basis. One-tenth of the full amount due was payable in the first year of ownership, two-tenths in the second year, etc., until year ten when the full amount was payable. This system was intended to act as an inducement for the purchase of new rather than secondhand houses. In computing the term T in Equation (3.3) we assume that house purchasers look at the average value of rates payable in the future. This average is computed as an annuity equivalent to the predicted series of actual payments.

Denoting R_t as the full rates payable in any year t and r the interest rate, payable is

$$\Sigma^9_{i=1} \quad \frac{i}{10} \quad R_t \left(\frac{1}{1+r} \right)^i + \Sigma^T_{i=10} \quad R_t \left(\frac{1}{1+r} \right)^i \tag{3.5}$$

To solve for the equivalent annuity value this is equated to $\Sigma^T_{i=1} A_t/(1+r)^i$ and a solution obtained for A_t. In computing this series the interest rate used is the

opportunity cost of capital defined earlier and a series on R_t was developed on the basis of information obtained from the "Returns of Local Taxation".

Net and Gross Costs

The net and gross costs of home ownership differ because of the incentives to own a home which are provided by the income tax system. The incentives are in the form of (a) mortgage interest deductibility in the computation of taxable income and (b) the non-taxation of imputed income from home ownership. To compute the value of these savings it can be seen from Equation (3.4) that estimates are required of the average marginal income tax rate for potential house buyers (τ_t) and of the proportion of gross costs which are deductible (δ_t) over the period.

We can define δ_t as

$$\delta_t = \frac{\gamma_t \; r_{ct} P_t + (1 - \gamma_t) \; r_{mt} P_t}{C_{gt}} \tag{3.6}$$

The first term in the numerator represents the non-taxation of imputed income (i.e., if this amount were invested in another asset taxation treatment would be less favourable), *the second represents mortgage interest deductibility*. In computing this component of the series we use either the value of $(1 - \gamma_t) r_{mt} P_t$ or the maximum interest deduction permissible under the income tax code.

An interesting feature of this formulation is that δ_t need not decrease over the life of the mortgage because the interest deduction decreases. This is due to the fact that, as the interest allowance falls with the maturing mortgage the imputed income component increases correspondingly. Further, there is no need for δ to be less than unity.

The average marginal tax rate for the time period is taken as the tax rate which would be faced by fairly typical new house buyers — i.e., a married couple with no children. This rate is given in Table 3.3.

The resulting series for the net and gross costs of capital for housing on an annual basis are given in Table 3.4. (This is obtained by simply summing the quarterly values).

A striking aspect of the series is the negative cost associated with ownership. The growing difference between the net and gross figures is attributable indirectly to inflation, in that the increasing price of houses makes the tax savings on imputed income and interest payments greater. This is compounded by the behaviour of the marginal tax rate over the period. It is further to be noted that this series is a simple cost of housing *not* the cost of housing relative to renting. For those years where costs are negative the difference between

owning and renting would be greater than the (negative) costs. Given that the rental market for this period was quite narrow we have not attempted to establish a comparable rental series.

For the policy maker the most interesting aspect of the cost of capital relates to how changes in the constituent elements bear upon the path of the series and upon the path of house prices. For example, how did the announcement of the abolition of rates in 1977, or the introduction of a new system of grants in 1978, affect the cost of capital? Or, how would an increase in the mortgage rate or a change in the opportunity cost of funds have influenced the measure? It is clear from Equation (3.3) that the instantaneous effect of such possibilities can be estimated directly. But the full effects of innovations will take several periods to work their way through the system since price expectations and hence the actual future path of prices are determined by events in prior time periods. As a consequence the price series and the accompanying cost of capital are best viewed as difference equations.

Table 3.4: *Cost of capital for new housing*

	Gross Cost of Capital in Nominal terms[a]	Net Cost of Capital in Nominal terms[b]	Gross Cost of Capital in Real terms[c]	Net Cost of Capital in Real terms[c]
1970	−77	−165	−285	−610
1971	7	−88	26	−328
1972	242	129	771	411
1973	−435	−591	−1239	−1682
1974	−557	−783	−1382	−1944
1975	−1088	−1411	−2225	−2884
1976	−885	−1336	−1505	−2273
1977	−351	−860	−529	−1298
1978	−1886	−2405	−2737	−3491
1979	221	−654	348	−1030
1980	−1933	−3067	−2101	−3332

(a) See Equation (3.3)
(b) See Equation (3.4)
(c) Obtained by dividing the corresponding nominal cost by the Consumer Price Index with 1980,4 = 100.

The implications of the figures presented in Table 3.4 are interesting. The extremely high capital gains — which even bring about negative costs in the late 'seventies — must raise questions about the wisdom of subsidising housing to the extent presently undertaken in Ireland. The effects of the income tax regulations have, over the period 1975-1980, turned negative gross costs of home ownership into even greater negative net costs.

The *distributional* effects of measures which permit deductions at the marginal tax rate are in themselves very regressive. It was proposed in Chapter 1 that one of the goals of housing policy should be to balance efficiency losses with distributional gains. However, the structure of incentives — primarily the mortgage interest deductibility and the non-taxation of imputed income regulations — are designed to yield a greater absolute benefit to those purchasing larger houses and those with higher incomes. (Though, if imputed income from home ownership were taxed, loan interest payments could be allowed as an offset against capital income.) Thus, the 'seventies was not a period in which equity and efficiency considerations were being balanced but, on the contrary, one in which deadweight losses were being compounded by distributional losses. The figures in Table 3.4 refer to a typical purchaser and thus conceal the disparity which exists between purchasers in different economic circumstances. For example, the 60 per cent marginal tax rate individual would experience much greater gains than the 35 per cent marginal tax rate individual.

The system of grants, mortgage subsidies, the non-taxation of imputed income, the abolition of property taxes all raise questions of the same nature — though do not all compound the deadweight losses with further distributional losses.

The focus of policy making in this area at the present time must be upon recognising the inherent instability of the incentive system as it has operated in the 'seventies. The rising demand for houses has brought about an increase in prices. This in turn has led various governments to give greater subsidies to housing in an attempt to bring ownership within the embrace of a greater number of families. The unfortunate effects of such philanthropy are that house prices become higher than would be the case in the absence of such stimulation. While it is certainly the case that more families now benefit from owner occupancy as a result of the incentive schemes, the cost (in both efficiency and distributional senses) of such measures is high. This is because prices which marginal buyers pay for their houses is higher, and in the distributional sense the cost is also high because of the large quasi rents which accrue to the suppliers of land. However, this goal is one towards which some degree of progress could be made if different policy instruments were utilised. The essential aspect of the 'seventies experience which has been important is that while carrying costs in the early years of a mortgage can be high, the real economic costs of home ownership can simultaneously be very low. In this chapter we have shown that these costs have actually been negative in several years. Housing has, thus, *not* been expensive. It is simply that the capital market has been inflexible in its supply of mortgage instruments. High house prices and high interest rates tilt the real mortgage repayments schedule such that carrying costs relative to income are higher in the early years of a mortgage and

lower in the later years compared with a situation in which inflation and interest rates are low. Various forms of solution have been proposed to get round this problem (see for example Lessard and Modigliani (1975), NESC (1976) or Thom (1983)). One solution, based upon the principal of relating mortgage payments to income, has recently been adopted in Ireland for households on low incomes in the setting up of the Housing Finance Agency.

A potential problem with such schemes for the mortgage supplying institutions is that the outstanding capital owned by the borrower may increase in nominal terms. A concern to the financial institution is thus whether the equity share of the home owner could tend to zero, since such an outturn could lead it to incur real losses in the case of bankruptcy of the borrower. However, with a sufficient down payment and/or appropriate repayment conditions, terms can be devised which would lead to arbitrarily small risks being incurred by the lending institution.

The adoption of such schemes could do much to overcome the problem associated with high carrying costs in the early years while at the same time obviating the perceived need to subsidise housing to such a degree as is presently done.

Having examined the pattern of the cost of home ownership for the 'seventies a statement should be made in relation to its likely future path. It has been shown here that the cost of ownership has been extremely low for the late 'seventies. This situation is unlikely to continue since the functioning of markets will ultimately ensure that rates of return in different sectors of the economy will tend to be equalised. The late 'seventies should be viewed, *ex-post,* as characterising a disequilibrium in the asset markets. Reasons will be proposed in Chapter 5 as to why negative costs could exist for such a prolonged period. Notwithstanding this, the argument in favour of increasing the flexibility of capital markets rather than subsidising housing remains valid.

An important issue, from the efficiency standpoint, relating to the return on investment and the cost of capital in the economy at large, concerns the rates of return on assets. Hendershott and Hu (1981) and Summers (1980) have argued that the returns to housing over several years have been greater than the returns to the stock market in the US. In terms of the efficient markets literature (see for example Fama (1970)) it might be surprising that rates of return in different segments of the market could diverge for so long. But such divergence has likely reflected the continual arrival of new information which maintained a difference. While it lies beyond the scope of the present paper, it would be valuable to examine how returns on housing in Ireland have compared with returns in the stock market or alternatively to examine the path of the cost of capital in each sector. Such comparisons could provide useful information on whether or not the supply of capital has been efficiently allocated between the different sectors.

Chapter 4

ECONOMETRIC MODELS

There have been three studies to date of an econometric nature which have sought to examine the forces determining price and quantity in the market for new private houses in Ireland. These have been by Nolan (1980), Kenneally and McCarthy (1982a, 1982b) and Thom (1983). A comprehensive review of different specifications of housing models is not given here since such a review has already been undertaken by Kenneally and McCarthy (1981). We thus concentrate solely on the studies mentioned above and primarily upon the latter two. The purpose of this chapter is, above all, to allude to the major obstacles which have been met by these researchers and to point out the direction in which modelling should progress. It will be argued here that each of the studies has contributed to understanding the market but that interesting questions remain unanswered. In the final section of the chapter, where the functioning of the Irish market in particular is examined, it will be argued that major changes must be incorporated into borrowed econometric models for them to be applicable.

(a) The Nolan Model

Nolan specified a three equation quarterly model: A demand equation explaining the number of houses demanded, a supply of housing starts equation and an equation linking the supply of starts with completions.

The demand equation is specified as

$$PCMP = f(NHPR, YR, STO_{t-1}, HH, NHPDOT, CPIDOT, MR, INF_{t-1}) \quad (4.1)$$

where PCMP   private house completions
      NHPR   new house prices deflated by the CPI
      YR   average disposable income deflated by the CPI
      STO   stock of houses
      HH   number of households
      NHPDOT rate of change of nominal house prices
      CPIDOT rate of change of consumer price index
      MR   mortgage rate
      INF   inflow of funds to the building societies

The rationale for including these variables is fairly straightforward though criticism could be directed towards the specification of the equation and the exact proxies used to capture certain influences.

The supply of starts equation is specified as:

$$PSTR = f(NHP, BC, IR, INF, C) \tag{4.2}$$

where
PSTR	number of private house starts
NHP	new house prices
BC	building costs
IR	interest rate charged to builders
INF	inflow of funds to building societies
C	capacity utilisation index

The supply of completions is then specified as a distributed lag function of the supply of starts.

Nolan alluded to the data difficulties associated with this specification. The supply quantity represents completions rather than sales – a not uncommon difficulty with housing data. Second, there is a break in the completions series in that the series was computed in a different manner after the end of 1976.

Nolan estimated various forms of these equations but encountered difficulties in getting the equations to fit well, in the sense of yielding coefficients of the expected sign.

Kenneally and McCarthy (1982a) (KM) have analysed this way of doing things from various standpoints. First, they argue that a market clearing model is not an appropriate one for markets such as housing, where lags exist between purchase and completion. Second, the role of the housing stock is not clear. Kenneally and McCarthy justify the use of this variable by using a stock adjustment model. Further, the starts equation has not been specified in accordance with any type of behavioural axioms and the lag structure between starts and completions is specified as fixed, whereas in practice this is likely to depend upon economic conditions. There is the problem of the discontinuity in the completions series. Kenneally and McCarthy further take issue with the estimated form of Nolan's model in relation to the treatment of real and nominal values and the interpretation of coefficients.

The rather disappointing empirical results which came from this paper illustrated that, in order to be able to understand the behaviour of the housing market, a more rigorous theoretical formulation of the model would have to be undertaken. The search for a model which, in some sense, fits the data or gives plausible coefficients for *some* variables while neglecting others which should be crucial to decision-making rules, is bound to yield results which are unsatisfactory both from a behavioural standpoint and the standpoint of policy making.

FIGURE 4.1: *The market for private housing.*
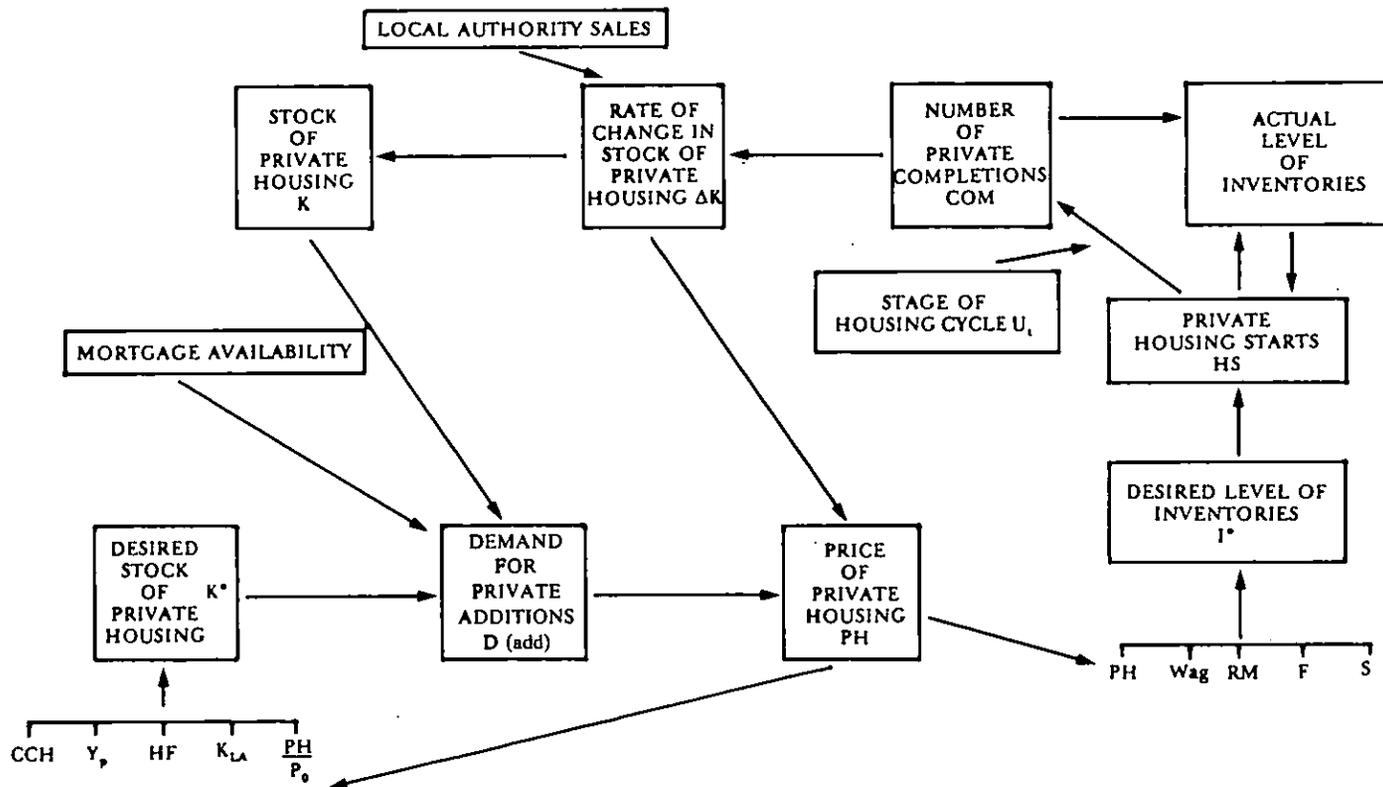
SOURCE: Kennealy and McCarthy (1982b, p.64)

(b) *The Kenneally-McCarthy Model*

In this regard the KM model constitutes an advance in our understanding of the functioning of the market. This is an explicit quarterly model grounded in decision theory which seeks to encompass not just those forces which impinge directly on the market for private houses but which influence it indirectly via the mortgage market, Local Authority housing, etc. The usefulness of this type of model is clear. If one believes that the market behaves in the way the theoretical model states then policies can be geared to achieve whatever aims are deemed desirable.

The KM model is detailed in Figure 4.1 and Equations (4.3) through (4.11). In general structure it is like the Nolan model though considerably more detailed. The demand side is based on a stock adjustment mechanism following on the work of, for example, Muth (1960) or Jaffee and Rosen (1979). The supply side relates a housing completions to a housing starts equation. The behaviour underlying the supply side is based upon the theory of optimal inventory holding.

The demand for housing, being the outcome of a stock adjustment mechanism (Equation (4.4)), is a function of desired stock and lagged actual stock. In addition, mortgage availability is a constraint upon the actual level of demand — though not upon the desired level. This variable is designed to measure latent demand, which may be suppressed because of insufficient availability of funds. The desired capital stock (Equation (4.3)) is a function of the relative price of housing, the stock of Local Authority housing, household formation, permanent income and the cost of capital for housing. The stock of private houses in any period is the sum of the stock in the previous period plus completions plus Local Authority sales (Equation (4.5)).

The supply side is specified in two parts. Housing completions are a distributed lag function of housing starts with weights variable, depending upon economic conditions (Equations (4.6), (4.7), (4.8)). Housing starts are then a function of the desired level of inventory.

$$K^*_t = a_0 + a_1(PH_t/P_t) + a_2 Y_{pt} + a_3 HF_t + a_4 CCH_t + a_5 K_{LAt} \qquad (4.3)$$

$$D_{(add)t} = \alpha_0(K^*_t - K_{t-1}) + a_6 MA_t \qquad (4.4)$$

$$K_t = K_{t-1} + COM_t + KLS_t \qquad (4.5)$$

$$COM_T = W_0 HS_t + W_1 HS_{t-1} + \dots \qquad (4.6)$$

$$W_i = C_i + \beta \left[\Sigma^i_{n=0} U_{t-n}/u + 1 \right] \qquad (4.7)$$

$$HS_t = \Delta I_t + COM_t \qquad (4.8)$$

$$\Delta I_t = a_1 [I^*_t - I_{t-1}] \tag{4.9}$$

$$I^*_t = b_0 + b_1 PH_t + b_2 WAG_t + b_3 RM_t + b_4 F_t + b_5 S_t \tag{4.10}$$

$$\Delta \left(\frac{PH_t}{P_t} \right) = a_2 [D_{(add)t} - \Delta K_t] \tag{4.11}$$

Source: Kenneally and McCarthy, (1982, a, p. 23).

CCH	cost of capital for housing
COM	completions of new houses
$D_{(add)}$	demand for additions to stock
F	financial costs in the building of houses
HF	household formation
HS	number of housing starts
I	actual stock of inventories of builders
I^*	desired stock of inventories for builders
K	actual stock of private housing
K^*	desired stock of private housing
K_{LA}	stock of Local Authority houses
KLS	sales of Local Authority houses
MA	mortgage availability for housing
P	price of other goods
PH	price of housing
RM	raw material costs in house building
S	level of sales of houses
WAG	wage costs in house building
U	index of general cycle of housing demand
Y_p	permanent income

Builders are perceived as having a desired level of inventory (I^*) which is dependent upon economic factors (Equation (4.10)) and they adjust to this desired level in accordance with a lagged adjustment mechanism (Equation (4.9)). Finally price adjusts by some percentage of the excess demand (Equation (4.11)).

The model is estimated from reduced form equations. For the demand side an estimating equation is obtained by substituting Equation (4.3) into Equation (4.4) and thence into Equation (4.11) to obtain a behavioural equation for price to which a stochastic error term (u_t) is then added, i.e.,

$$PH_t/P_t = f(\text{constant}, Y_{pt}, HF_t, CCH_t, K_{LAt}, K_{t-1}, MA_t, \Delta K_t, (PH/P)_{t-1}, u_t) \tag{4.12}$$

For the housing starts an estimable equation is obtained by substituting Equation (4.10) into (4.9) and then into (4.8) for ΔI_t to yield an equation for starts, i.e.,

$$HS_t = g(\text{constant}, PH_t, WAG_t, RM_t, F_t, S_t, I_{t-1}, COM_t, \varepsilon_t) \qquad (4.13)$$

A completions equation is obtained by substituting Equation (4.7) into Equation (4.6) yielding a non-linear equation, i.e.,

$$COM_t = h(HS_t, HS_{t-1}, HS_{t-2} \dots, Y_t, Y_{t-1}, Y_{t-2} \dots) \qquad (4.14)$$

This three equation stochastic quarterly model (with three further identities) was estimated for the period 1969 IV to 1976 III using two stage least squares and generalised least squares where there was an indication of non-spherical errors. From the reduced form results, the parameters of the structural equations can be retrieved. The important parameters were in general of the right sign and most of the reduced form estimates were significant. The reduced forms were found to fit well and the model, when dynamically simulated, was found to track well for the variables in level form.

Thus, the theoretical development is appropriate. It recognises lags, influences from other sectors of the housing market and non-Walrasian mechanisms. But the estimates emerging from the model are not all satisfactory. The elasticity of desired stock with respect to per capita income is 0.35 and with respect to the cost of capital is only 0.06. These are not plausible, as recognised by KM. The starts completions equation, however, yielded a plausible weight structure and the starts equation tracked well.

The KM model is an extremely careful and well designed construct and given the complexity and volatility of the regulations governing the housing market, coupled with data inadequacies, it is not at all surprising that some of the estimated coefficients should turn out to be of the wrong sign. There are probably two ways in which the paper is deficient and, unfortunately, not both of the deficiencies have obvious solutions. First, the supply side is based upon inventory theory. While this is appropriate for a market where the bulk of building is of the speculative type, it is less than appropriate for a mixed market where much of the construction is of the "one-off" contract type. By the mid-seventies about 35 per cent of the market, and by 1983, 60 per cent of the market, was of this type (Jennings and Grist (1983)). However, the construction of an econometric model capable of encompassing both types of behaviour is a rather tall order. Even if possible, present data series do not permit a separation of variables describing each segment of the market. It is unlikely, therefore, that much progress is feasible upon this front. The second difficulty relates to data

— a difficulty recognised by KM. They state that the major data deficiency at present is "the absence of a comprehensively defined cost of housing capital series" (KM (1982, b, p.58)). On this front progress certainly can be made even though the construction of such a series is more than a minor undertaking. Perhaps in future work researchers may be able to use the methodology and results presented in Chapter 3 of the present research.

(c) *The Thom Model*

In contrast to the papers by Nolan and Kenneally and McCarthy where a structural model of the housing market is estimated within a supply/demand framework, the paper by Thom (1983) emphasises the role of housing as an asset in a portfolio, the price of which should adjust towards equating returns accruing to the different assets in the portfolio. The model is a version of that developed by Kearl (1979). Since this model provides an important mechanism for examining the functioning of the whole of the Irish housing market, a discussion of Thom's paper is undertaken in the following chapter.

Chapter 5

A POLICY ORIENTED ANALYSIS OF THE STRUCTURE OF THE HOUSING MARKET

5.1: *Introduction*

As the title of this chapter indicates, its purpose is twofold: First, it is to examine the structure of the market for new houses and in particular the role which is played by land. Second, it is to examine the efficacy of various measures (both those implemented and those not) which have been proposed at various times as methods of controlling the price of housing. For example, a set of recommendations which could have had a major impact on the housing market, but which have not yet been implemented are those contained in the *Report of the Committee on the Price of Building Land* (1974). (This is also known as the *Kenny Report.*).

The Report was undertaken at the request of the Government as a result of concern over the rapidly escalating price of building land which had been witnessed in the 'sixties. Based upon the belief that rents, which had accrued to private land owners upon the transfer of land to building from some other purpose and which had been generated in large measure by the servicing of land by Local Authorities, should be captured for the benefit of the community at large, the Report recommended that Local Authorities should have the right to purchase land within designated areas at *current* use value plus 25 per cent. It was also hoped that this would enable house prices to be kept lower since land costs formed a considerable portion of total housing costs. (A minority report, feeling that this recommendation would both be administratively very complex and likely to encounter constitutional difficulties, recommended that an alternative system, embodying levies on land transactions not involving Local Authorities and a system of "first choice" for Local Authorities, be implemented.)

To date the recommendations of the Report have not been implemented, but have received renewed attention following the setting up of the Joint Oireachtas Committee on Building Land in 1982 (see Jennings (1983 b) and Jennings and Grist (1983)). Until recently, despite the low priority apparently assigned to implementing the proposals, the implications of the Report for the likely functioning of the housing market merit examination, not just because they may conceivably be implemented at some future date, but because they are useful in illustrating how different segments of the market are interrelated.

In the next section a theoretical model of price equilibration in the housing market is presented. Then, Thom's paper and the many interesting econometric questions it raises are analysed. This leads to an analysis of the interrelationships between the various key segments of the market — land, mortgages, the price of existing houses and the price of new houses.. This development proves to be illuminating for the policy maker and it provides a very useful vehicle for examining the general philosophy underlying, and the long-term utility of, price controls in the market. Finally, the findings of the Kenny Report and the more recently implemented price control scheme involving "Certificates of Reasonable Value" are evaluated.

5.II: *A Theoretical Model*

From both a theoretical and policy standpoint the most satisfactory way of examining the price of the housing stock is to recognise that the short-run determinants may differ from the long-run determinants.

In any time period the amount of housing services is inelastically supplied because of the fixity of the capital stock. Since net accretions to the stock on an annual basis in Ireland form about $2\frac{1}{2}$ per cent of the total in recent years, house completions can be ignored as a determinant of the instantaneous price of services. It thus follows that quasi rents accruing to stockholders are completely demand determined. The supply of housing services, $H\S$, can consequently be specified as a proportional function of the stock (H)

$$H\S = \varphi H \qquad (5.1)$$

The demand for housing services is determined by the price of the services, PS, the price of all goods, P, income, Y, and demographic influences, D.

$$H^d_\S = \theta\,(PS, P, Y, D) \qquad (5.2)$$

Equilibrium is determined by the Equations of (5.1) and (5.2)

Interest ultimately is in the pricing of the housing stock rather than the services flowing from it. In very general terms, the demand for the stock depends upon the return available on it versus the returns on other aspects *ceteris paribus*. (For example, if the price of rental accommodation is low or if the interest rate in the economy is high then the demand for owner-occupied housing will be less.) Since the stock of housing is fixed, equilibrium in the market is attained by the adjustment of the price (PH) such that the returns to all assets are equalised. This equilibrium ensures that the existing stock will be held. Arbitrage insures that the price of housing should adjust such that the price of the services equals the cost of ownership.

$$PS = PH.CC \qquad (5.3)$$

where CC is the cost of capital. In simple terms, this equation means that if, say, the value of services is £1,000 per year and the cost of capital is 8 per cent, then

equilibrium price of the house would be £12,500. Given this view of. the functioning of the market it is the price which is endogenous to the system.

From Equations (5.1) and (5.2) the equilibrium demand for the housing *stock* can be written as

$$H^d = \theta/\varphi(PS, P, Y, D) = \theta/\varphi \, (PH.CC, P, Y, D) \qquad (5.4)$$

From this the equilibrium relative asset price of housing is given by equating the fixed supply $\overline{H}$ with demand H^d

$$\frac{PH}{P} = f(\overline{H}, \, CC, \, P, \, Y, \, D) \qquad (5.5)$$

This model has a very simple interpretation as illustrated in Figure 5.1. In the short run the supply of housing is fixed and represented by $\overline{H}^s$. The equilibrium price is thus determined by the position of the demand curve. With changes in *the cost of capital, income or the prices of other goods the demand curve shifts* and the price of housing adjusts accordingly.

In the long run the equilibration mechanism is somewhat different. This is *illustrated in Figures 5.2 and 5.3. With a stable demand curve and the short-and* long-run supply curves given in Figure 5.2, the short-run equilibrium price is given by PH' and the long-run price by PH^c. The flow supply per unit of time (investment) is given in Figure 5.3. The positive slope reflects the higher costs associated with increased rates of supply. With a price of PH' the flow supply is given by I'. With the attainment of the long-run equilibrium housing stock H^c the corresponding rate of investment I^c will be just sufficient to cover the depreciation on existing buildings, i.e., $I^c = \delta H^c$. Alternatively, if we choose to define the long run as one in which there is a population steadily increasing at the rate v (with the demand curve shifting and the price rising at corresponding rates) the equilibrium rate of investment will be defined by $I^c = (\delta + v)H_{t-1}$.

With no constraints or imperfections in the marketplace, Equation (5.5) could be estimated directly to determine the relative prices for some functional form, given the availability of data. However, constraints govern the operation of the market. This is particularly obvious in view of the historic negative cost of capital for housing. Such a phenomenon could not continue indefinitely in a competitive marketplace. The constraints which must be incorporated relate to (a) the availability of mortgages and (b) the effects on monthly mortgage payments of inflation.

The need for a mortgage availability constraint springs from the fact that many purchasers would enter the market if they could financially lever themselves to a sufficient extent. The fact that most potential buyers cannot borrow 100 per cent of the purchase price of a house means that demand and the subsequent equilibration of prices and service values are deferred.

The second constraint on the operation of the model springs from the fact that, in periods of rising inflation, the mortgage payment relative to income can increase dramatically. The consequence of this is that buyers are constrained by their *current* income in their ability to sustain high mortgage payments.

FIGURE 5.1: *The pricing of the housing stock*
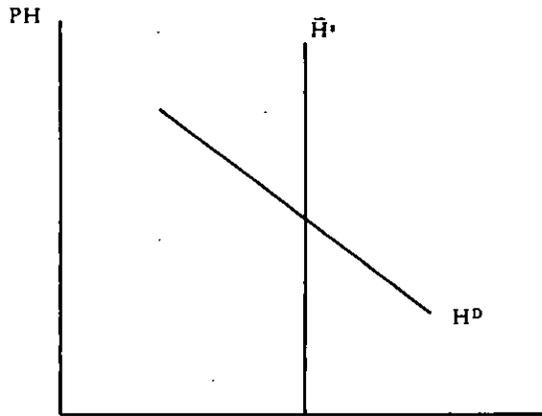
FIGURE 5.2: *Price and quantity equilibration in the long run*
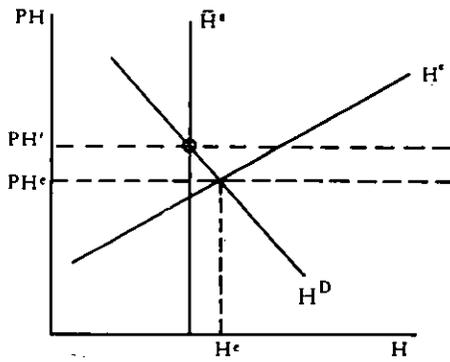
FIGURE 5.3: *Price and quantity equilibration in the long run*
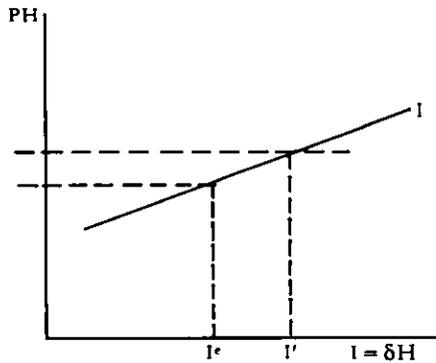
With higher inflation and nominal interest rates the relative real burden of mortgage payments rises in the early years of the mortgage life. Despite the fact that the real financial position of the household does not deteriorate with inflation (assuming real incomes remain constant), it is only in *future* years that higher nominal incomes result from inflation – the higher incomes which are necessary to meet loan repayments. Those households who undertake a mortgage commitment with constant payments in such circumstances experience a severe reallocation of consumption over their life cycle. Their decision to invest in housing implies greater savings in the early years in return for greater consumption subsequently.

The effect of inflation on the house purchase decision is, as a result, twofold. The expected capital gain, which will induce a greater demand, is incorporated in the cost of capital. The greater financing cost, however, will moderate this.

Incorporating these changes into the model means that Equation (5.5) becomes

$$PH/P = f(\bar{H}, CC, P, Y, D, MA, INTY) \qquad (5.6)$$

where MA represents the mortgage availability term and INTY the mortgage interest paid relative to income.

The theoretical operation of this system is straightforward. Changes in demand give rise to an immediate change in relative price. This further feeds back into price expectations and the price will adjust to its new equilibrium over several time periods with its path depending upon mortgage availability and the ratio of payments to income.

The foregoing is a fairly general description of the pricing mechanism in the housing market. Given that the major focal point of this paper is an examination of the pricing mechanism and, further, given that much emphasis has been placed upon the role of the "economic" variables in this mechanism, this should not be interpreted to mean that households are viewed as acquiring housing purely for investment reasons. There now exists a relatively large literature which has examined the reasons for why some households choose to rent rather than purchase a house. Weiss (1978) proposes that the tenure choice decision is influenced by the degree of efficiency which a household has in the production of household services. For example, individuals who like gardening or carpentry would be more likely to purchase than rent. Henderson and Ioannides (1983) on the other hand, concentrate upon the degree of utilisation of the property in the tenure choice. Bossons (1978) focuses upon the life cycle characteristics of individual households who face the future with uncertainty. For example, those in professions characterised by a need for mobility are more likely to rent than own, while households with larger families are more likely to own than rent. Artle and Varaiya (1978) examine decision making in a certainty context where the tenure choice depends upon how ownership would distort the optimal asset accumulation plan over the life cycle. For example, ownership may require that individuals accumulate assets at a time when dissaving would

be preferable, as in the case of young households on a low part of their earnings profile, or in the case of older households who might wish to consume some of their asset stock.

The common aspect of all of these views is a recognition that (i) home ownership is undertaken for a variety of reasons, (ii) home ownership is by no means a perfect substitute for rental accommodation and (iii) the ownership of a house means that individuals have both an asset and a consumer durable. The fact that, in this paper, the pricing of housing is viewed as being determined in the short run by means of a quasi portfolio model in no way implies that this is the only channel of influence on house prices nor does it imply that housing is purchased only *qua* asset. It simply means that in the short run, with relatively fixed demand, the major forces causing price fluctuations are those related to economic variables such as interest rates, inflation, economic cycles, etc., while in the longer run the socio-demographic type factors influence prices.

Returning temporarily to econometric work, it is a version of the foregoing model which Thom (1983) has estimated based on some modifications proposed by Buckley (1982) and a further suggestion by Kearl (1979). Buckley proposed that house prices evolve over time in accordance with excess demand, i.e.,

$$\left(\frac{PH}{P}\right)_t \bigg/ \left(\frac{PH}{P}\right)_{t-1} \quad \left(H, d_t/Hs_{t-1}\right)^k \tag{5.7}$$

where $H_s d$ is the demand for housing services and Hs_{t-1} is the available amount of services in period $t-1$. Kearl proposed that, in addition to considering current income as a constraint on the acquisition of a mortgage, the independent effect of the "duration" of the mortgage should be considered. Duration is a term developed by Macaulay (1956) to describe the tilting effect of inflation on the ratio of mortgage payments to income over the life of the mortgage. The higher is the ratio in the early years relative to the latter years the greater the tilt of the payments scheme. Macaulay's measure is defined by

$$D = \sum_{t=1}^{T} t\, RQ(t)d^t \bigg/ \sum_{t=1}^{T} RQ(t)d^t \tag{5.8}$$

where t denotes time, $RQ(t)$ the real quarterly mortgage payment in each period, T the time horizon and d the discount factor such that $d = 1/(1 + r)$, r being the interest rate. With a constant mortgage payment (5.8) reduces to

$$D = \sum_{t=1}^{T} t\, d^t \bigg/ \sum_{t=1}^{T} d^t \tag{5.9}$$

This can also be viewed as the elasticity of the present discounted value of the stream of payments with respect to d. It can readily be verified that $\partial D/\partial r < 0$.

The estimating equation which results from all of this is

$$\Delta \ln (PH/P) = a_0 + a_1 \, UC + a_2 \, \ln RQ + a_3 \ln D + a_4 \ln MA + a_5 \ln Y$$

$$+ \, a_6 \, \ln DF - k \ln (\frac{PH}{P} \cdot HK)_{t-1} + \varepsilon_t \tag{5.10}$$

where variables are defined as above with the addition that UC is the user cost of capital, Y is production in the transportation goods industry, DF represents demographic factors and HK the stock of owner occupied housing.

The results for the model are astonishing given the variables used and the somewhat arbitrary choice of specification. All of the estimated coefficients are of the expected sign and significant at the 5 per cent or 1 per cent level of confidence.

Despite this, serious doubts must be cast on the estimates for the following reasons. First, as stated by Thom, the model is not robust to different specifications of the mortgage availability variable, MA. Second, again as stated by Thom, when an income measure rather than a production measure is used for Y the coefficient a_5 is not found to have the expected positive sign. Third, and this is a point upon which Kearl as well as Thom errs, the variable D really has no role in an optimising model and its role is that of a nuisance variable. It has been argued extensively by Anastasopoulos and Irvine (1984) that Kearl fails to recognise that the payments path chosen by house purchasers is a *choice* variable if they can afford the initial payment. It is not determined by inflation. Consequently the insertion of the variable D only serves to introduce inefficiency into the coefficient estimates. Finally it is to be noted that the model is rather strangely specified in that there is no explicit development of the supply side. The model appears to be a short-run model with prices determined by the intersection of a shifting demand curve and a fixed stock of housing which slowly changes over time. However, the price variable is for *new* houses, not the existing stock. Given this, it would be expected that the supply side would have been modelled. But it is not. Only the demand side is modelled.

It is to be concluded from this that a great deal remains to be ascertained about the price equilibration mechanism in the housing market. In particular there remain two important developments. First, suitable data series must be developed – as we have already pointed out. In the second place estimation should not simply proceed upon the basis of econometric models borrowed from other researchers. Model building must recognise the institutional details of the Irish market. This relates in particular to the role played by mortgage institutions, the system of short-run price controls and the conceptual distinction between the markets for new and secondhand houses.

5.III: *Controlling the Price of Housing: Kenny, CRVs and the Price of Land*

It was proposed earlier that the role played by land in the housing market is a key one. The price of land, land being an input into the productive process, is determined *ceteris paribus* by supply and demand. The demand factors are related to the price of the final goods (housing, industrial use, etc.,) for which it is used. Consequently, the subsidisation of housing, *ceteris paribus,* increases land prices and while it may appear, from an accounting standpoint, that higher land prices are responsible for higher housing prices the factors influencing the demand for houses, in fact, manifest themselves in the price of land. This essentially is the argument proposed earlier.

In analysing the path of prices in the housing market a distinction must be maintained between the new housing market and the market for existing houses. When shocks impinge upon the system, from a position of equilibrium, which increase the equilibrium price of housing (in periods of no limit on credit availability), it would be expected that the market price of secondhand housing would reach its new equilibrium quickly in response to a demand increasing exogenous shock, the time depending primarily upon the speed at which information becomes avialable. In periods where credit restrictions exist the attainment of the new equilibrium will be slower. Even in this case, however, the attainment of the new equilibrium should never be longer than two to three quarters since a sufficiently high number of houses are purchased without mortgages and hence the purchasers are not credit constrained. (Published figures on housing loans indicate that perhaps 40 per cent of purchases in recent years may have been undertaken in this way.) Even at this point a further distinction must be drawn between the behaviour of the whole market for secondhand houses and that segment of the market for which price data exist. The published data are based upon prices made available only by the principal lending agencies, as opposed to being a representative index of all transactions. Consequently, *econometric testing of whether or not the market equilibrates quickly will be biased in the sense of overestimating the adjustment period.*

One of the interesting aspects of the research to date upon house prices is that the focus of attention has been upon the market for new houses despite the fact that this is conceptually a much more complex segment to examine than the market for secondhand houses. Much of this complexity arises from the roles which rationing and price controls have played. Rationing has been important because funds from the mortgage granting agencies have been limited at particular times because interest rates have been below the equilibrium rate. Price controls have had an increasingly important role with the extension of the system of Certificates of Reasonable Value (CRV) over the period 1973 to the present.

Since price controls play what is perceived to be a central role in housing policy their operation warrants serious examination.

The effects of price controls can most easily be understood by considering the three major blocks in the private housing market — the stock of existing housing, the flow of new houses and land. The adjustment in the price of new houses works sequentially through these three blocks. From an initial steady state in which prices equilibrate supply and demand, consider again the effects of a boost in demand for housing services, for example, generated through a rapid growth in income or an increase in government financed incentives. The initial manifestation of the demand increase will be in the market for the existing stock of houses. Prices will increase since there are no controls. In the CRV covered market for new houses, on the other hand, the prices charged are those permitted under the scheme. Being based primarily upon historic cost, the prices in this segment will be slow to adjust. However, not all new houses during the period carried or required a CRV or exemption certificate. While regulations governing CRVs have varied during the 'seventies there has always remained a substantial proportion of new houses outside the scheme, for example, large new houses sold to non-first time buyers or non-mortgage financed houses. (Figures on CRV numbers are obtainable from the *Department of the Environment Annual Reports.*) The incentive for builders to stay within the CRV scheme has been that, by so doing, their houses would be more attractive to potential buyers. However, if by opting not to obtain a CRV a higher price could be obtained, then there is an incentive to bypass the controls system. By the end of the period under consideration CRVs were made mandatory not just to qualify for government grants but for the receipt of a mortgage from any of the lending agencies. This extension would seem to have been undertaken with a view to widening control on the price of new houses.

The question regarding CRV covered house prices then relates to whether this segment of the market can stay out of line, in the sense of offering housing services at a lower unit cost in the long run, because of the existence of controls, than the uncontrolled secondhand segment. The answer is clearly no. The role which land prices play is what ensures this. Since the price of land is determined by its best use, the market for uncontrolled houses, the price of land which *all* developers and builders must pay will increase. The following generations of new houses *including* those covered by the CRV scheme will thus increase in price. Such price increases are permitted under the operation of the price controls scheme since they represent higher costs incurred by the builder.

What, then, are the effects of the system of controls? In the short run controls will be effective in a rising market but in the long run their effects will be minimal as far as controlling prices is concerned, though they will likely have . redistributional consequences. That controls will be effective in the short run

for a large part of the market under the widened scope of the CRV system (i.e., that segment depending upon being able to obtain a mortgage to finance their purchase) is likely true. The segment more likely to avoid the controls is that composed of the "one-off" houses purchased by households not requiring a mortgage.

In the medium and long term, in contrast, the effects of price controls are not as clearcut. If a situation exists in which housing services supplied by *new* houses are lower in price than those supplied by the stock of existing houses (with the disequilibrium temporarily sustainable by controls and a shortage of mortgage funds) the price of land will adjust in the upward direction. This adjustment will obviously occur in the uncontrolled segment of the market very quickly, in that landholders supplying the potentially uncontrolled segment (primarily "one-off" and small "estate" developments) will be able to obtain higher prices. This, in conjunction with the fact that *builders* recognise that higher prices are to be obtained in the final goods market, implies that the price of *all* land supplied for house construction will increase. In simple technical terms, the higher price of housing services in the secondhand market has the effect of shifting the builder/developer's demand curve for land, and with an upward sloping supply of land curve (see White and White (1977)), the price of land increases. (See Figure 5). The actual increase will depend upon the various underlying elasticities. When the land is subsequently used for construction the higher price paid for it will appear in the form of higher prices. The higher prices charged in these following periods do not contravene the CRV system of controls since the latter are based upon mark-up/accounting principles.

To answer the question originally posed regarding the effects of price controls, the answer is that, while perhaps effective in the short run, the

FIGURE 5.4: *Determination of the price of land.*
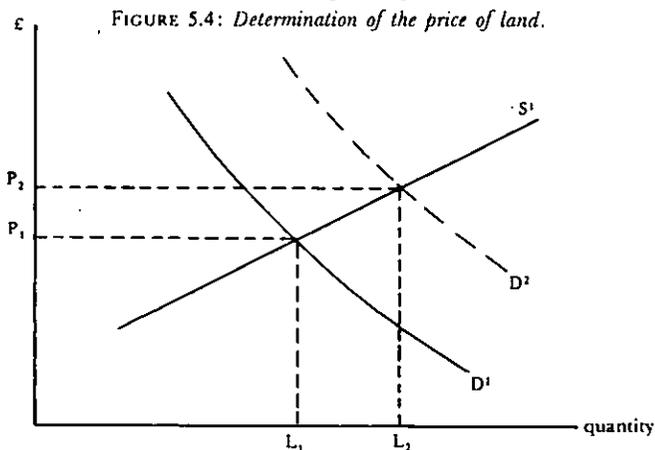
From the initial equilibrium (P_1, L_1) an increase in the value of housing services shifts the builder's/developer's demand for land. With an upward sloping supply curve the price of land increases.

principal long run effects relate to the *distribution* of capital gains but not to the equilibrium price of housing. Rather than the builder obtaining a capital gain, in response to some demand increasing shock, the buyer obtains the capital gain because he is able to purchase at a price below the new equilibrium and the land supplier is unaffected.

The effects of the controls are also asymmetric in two senses. First, the builder of new houses will rarely reap a substantial capital gain, though he may experience losses. This arises because of the mark-up type pricing scheme permitted by the CRVs. Second, the time path of new house price adjustment should be more rapid in periods where market conditions are slack (since downward price movements are unfettered) but may be slow in periods where demand is high in the CRV covered sector.

Having established that the major effect of the system of price controls is redistributional by means of understanding the time theoretical inter-relationships in the marketplace, it is interesting to see if this framework can throw any light upon the likely effects of the proposals embodied in the Kenny Report.

The majority report is interesting because, while it indicates at the outset (e.g., paragraphs 7, 12, 14) that Ricardian principles governing the demand for land have been understood, these principles have seemingly been ignored in the recommendations. Paragraph 73, for example, states

> When the local authority decides to dispose of land within a designated area for building purposes, we think it desirable that they should do so by making agreements with builders . . . and that these should impose stipulations as to the type of building and its price.
>
> . . . The scheme will strengthen the powers of local authorities and will, we think, enable them to introduce some element of price control of new houses.

Thus, compulsory purchase of land at below market price is seen as a mechanism whereby lower new house prices can be attained. In the absence of an increase in supply, the falsity of this proposition is evident from our foregoing discussion. The coming onto the market of new houses at prices less than those existing in previous time periods will disturb the equilibrium existing between new and secondhand houses, *ceteris paribus*. With a switch in demand towards the new houses, an excess demand for these will develop if the price is not permitted to rise to the pre-existing level. Passing on the benefits of low priced land to the buyer would thus necessitate a rationing mechanism, the consequences of the "successful" operation of which would be to give an immediate capital gain to this initial buyer. (To stipulate that the purchaser be required to hold the house for a minimum time period – as has been proposed by some – is hardly penance with a guaranteed high return to the investment.)

Such a scheme would have no effect on the price of secondhand houses if the same total supply of additions to the housing stock were forthcoming each year, since people who previously were willing to purchase a secondhand house would still be willing to do so at the same price *(ceteris paribus)* if they were not successful in obtaining a "rationed" house. On this level, the methodological shortcoming of the Kenny Report lies in not visualising the role played by the price of the *flow* of housing services which is determined (from the demand side) by the stock of housing. To believe that the price of an asset can be changed in this environment, by changing the price of an input used in producing *accretions* to the stock, represents a misunderstanding of the forces which determine asset prices. The fact that the price of a new house can be "attributed" to its components does not mean that if one of the component prices is lowered that the price of the house will correspondingly fall. A consistent policy aimed at reducing house prices requires that, if input prices are lowered, the incentives to purchase output must be changed at the same time. For the Kenny Report recommendations to be effective in lowering the price of the housing stock they would have to result in an increase in the annual flow of new houses. In this way the price of the stock could be lowered in the long run but not in the short run since the stock is effectively fixed. If it were the case that substantial tracts of serviced land could come on stream more quickly then the supply of housing could increase and the equilibrium price would fall.

A final comment on the sale of land purchased compulsorily is in order. One of the committee's purposes was to ensure that some of the rent (primarily caused by servicing with water and sewerage facilities) be captured by the Local Authorities for the benefit of the community. If the recommendations regarding compulsory purchase were to be implemented, rent capture could still be ensured by simple resale (e.g., by auction) to a developer or builder at market price. The funds so obtained could then be used for the development of social amenities, parks, Local Authority housing or whatever the community deems desirable. This redistributive goal, however, in the absence of a long-run increase in the supply of building land, should not be confused with the objective of lowering the equilibrium price.

It is not the purpose here to judge whether or not compulsory purchase should be pursued – this involves legal, normative and administrative feasibility considerations. It must be realised, however, that to disregard the price determination mechanism from the macro standpoint will result in a situation where prices for the stock of housing may not decrease and that the major effect of controlling new house prices will be to give an immediate and substantial capital gain to initial buyers (who will be unlikely to represent the lower tail of the income distribution in any case). This outcome is hardly what the Kenny Report writers had in mind in designing their scheme.

Chapter 6

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this paper has been to offer an explanation of the functioning of certain aspects of the market for private new housing in Ireland during the 'seventies and to quantify the influences of certain variables upon prices. Given that very large amounts of society's resources are invested in housing each year (both by the private sector and by the government) and given the manifest concern with rising prices, the goal of formulating policies which are consistent with stated social and economic objectives is an important one. It is hoped that the findings of this study will be of interest and use in formulating policy. The findings are the following.

6.I: *Housing Quality*

The first aspect of the housing market discussed was the evolution of the quality of new houses. While this has already been documented for the latter part of the 'seventies, the reasons for this general trend were examined and implications drawn for empirical research on house prices. It was proposed that, in addition to the effects of higher incomes and on expanding population, the evolution of higher quality has been attributable to the structure of state grants, the existence and subsequent abolition of rates together with regulations governing their sliding scale remission when operative, the structure of development of building sites, the housing market recession of 1974/75, the cost of working capital, the role of price controls and to the general battery of incentives to purchase housing.

An index of quality corrected house price was then developed and it was shown that the *real increase in the price of services supplied by new houses in the late 'seventies is overstated unless provision for such changes is made.*

6.II: *Taxation*

The second issue examined is the role which the income tax schedule has played as an incentive for investment in housing. It has been an almost universally held belief that (a) households have faced increasing marginal tax rates and (b) that there has thus been an increasing incentive to purchase housing because of the provisions of the income tax code permitting the deduction of mortgage interest payments.

To examine proposition (a) a logistic curve was fitted to data available for a subperiod and the resulting moments of the income distribution of housebuyers were then used to estimate the time path of the average of the marginal tax rates. The results indicated that *the tax rate facing purchasers has increased from about 26 per cent in 1969 to around 40 per cent in 1979* due to the lack of full indexation in the tax schedule, but the income splitting provisions of the 1980 Budget lowered this considerably for married couples. While the tax rate thus increased substantially it was then argued that *this provision alone was not sufficient to encourage investment in housing rather than any other asset.* The general provision for interest deduction (rather than just mortgage interest) would ensure investment in a variety of forms were it not for the fact that housing provides a very good form of collateral and has been perceived as an asset which would likely yield a higher non-taxable capital gain.

6.III: *Cost of Capital and Subsidies*

In view of the growth in the number of new housing units it would have been surprising had the cost of home ownership been growing at the same rate as that suggested by the rate of growth in prices. Accordingly, the cost of ownership (which we have also termed the cost of capital) for new house purchase was examined in Chapter 3.

A comprehensive theoretical measure of the cost of capital was first developed. This was designed to take account, not only of such factors as the mortgage interest rate and the opportunity cost of capital, but the effects of property taxes, depreciation and maintenance, capital gains, income tax provisions and government grants. The resulting numerical estimates showed that the *cost of capital for new home purchase has been strongly negative for several years in the 'seventies*. This has been attributable primarily to the substantial capital gains which have materialised and to the savings on income taxes.

These negative costs raise at least two questions. First, is it necessary to subsidise housing to the extent then undertaken? Second, what are the mechanics of the operation of the market which have permitted continual capital gains?

It would seem that subsidisation is undertaken because of the recognition of the high carrying costs relative to income despite the resulting gains to households at all ranges of the income distribution. If carrying costs concerns are the reason for subsidisation it is unclear why the government has not been more active in mortgage policy by providing incentives to mortgage granting institutions to vary the type of mortgages offered. The availability of alternative instruments would obviate much of the perceived need for the present costly subsidisation of housing which permits effects which are very regressive in the income distributional sense. Of course, it can also be asked why the Building

Societies themselves have not offered alternative types of mortgage instruments. Perhaps their dominant position in the housing market, made possible by their tax treatment, has meant that competitive forces have not forced them to be less risk averse and more innovative in the type of mortgages offered. (For a discussion of such instruments see Lessard and Modigliani (1975) and NESC (1976)).

While recent governments have made movements in this direction, in the form of the Housing Finance Agency, the question of why such instruments are being proposed only for low income groups remains curiously without an answer. The distributional consequences of high and middle income households being financed by subsidised interest rates with lower middle and lower income households paying higher rates are severe. When the historic practice of permitting mortgage interest deductions to be made at households' marginal rates of tax is imposed upon the interest subsidisation policies, a pattern of subsidisation emerges which is extraordinarily regressive.

The second question, concerned with the equilibration of markets, was examined in Chapters 4 and 5. Here it was argued that restricted mortgage availability, the constraining role of *current* rather than life cycle incomes and possibly inaccurate forecasts of prices have prevented immediate equilibration.

It should be noted at this stage that the intent of the findings on the cost of capital is not to argue that it is only (or even primarily) low cost of capital which has stimulated the demand for housing. The demographic and income expansions of the period have probably been at least as important in boosting demand. The reason why so much emphasis has been placed upon the cost aspect is that, to date, no systematic attempts have been made to measure such an influence. The relative importance of the low cost of capital, the growth of income and demographic factors is something which may be examinable by econometricians in the future.

6.IV: *Econometric Work*

In Chapters 4 and 5 the econometric work on the functioning of the housing market was reviewed. It was argued here that substantial insights into the operation of the market have been generated by the existant work, though unfortunately the *statistical estimates arrived at by the researchers are still somewhat unsatisfactory*.

6.V: *The Housing Market and Controls*

In Chapter 5 a model of the functioning of the whole housing market was offered. This consisted of an examination of the interrelationships between the market for the existing stock of houses, the flow of new houses and the land market. By recognising the essential difference between stocks and flows and

further recognising the fact that new house prices do not move from one equilibrium to another instantaneously it was possible to draw inferences in relation to current issues of policy. In particular it was illustrated that *the primary effects of price controls are redistributive and that their long-run effect on the price of even new houses should be negligible.* The use of this model further provides a vehicle for examination of the proposals in the Kenny Report. The principal theme of this chapter is to illustrate that the determination of equilibrium prices must be viewed from a behavioural rather than an accounting framework. One of the most unfortunate aspects of policy making in recent years in relation to controlling prices has been that, even though praiseworthy in intent, the major long-run effects of the system of new house price controls have had little to do with controlling prices. If the principles governing the formation of prices and the interrelationships between the different segments of the market were recognised, the possibility of formulating policy designed to achieve certain social and economic objectives would be greatly enhanced.

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